MACMILLAN'S
TEACHING IN PRACTICE
FOR SENIORS

VOLUME SIX

MACMILLAN'S
TEACHING IN PRACTICE
FOR SENIORS

AN ENCYCLOPAEDIA OF MODERN METHODS
OF TEACHING IN THE SENIOR SCHOOL
WRITTEN BY RECOGNISED AUTHORITIES
IN EDUCATION AND

EDITED BY
E. J. S. LAY
Editor of Macmillan's *Teaching in Practice in the Junior School,*
Teaching in Practice for Infant Schools, etc.

In Eight Volumes, with a Portfolio
of 150 *Class Pictures*

VOLUME SIX

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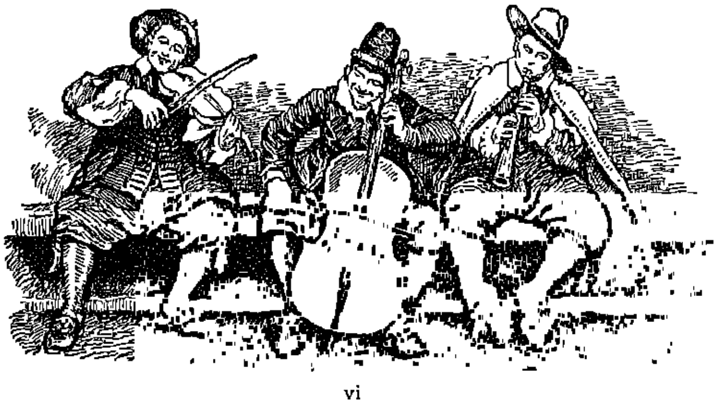
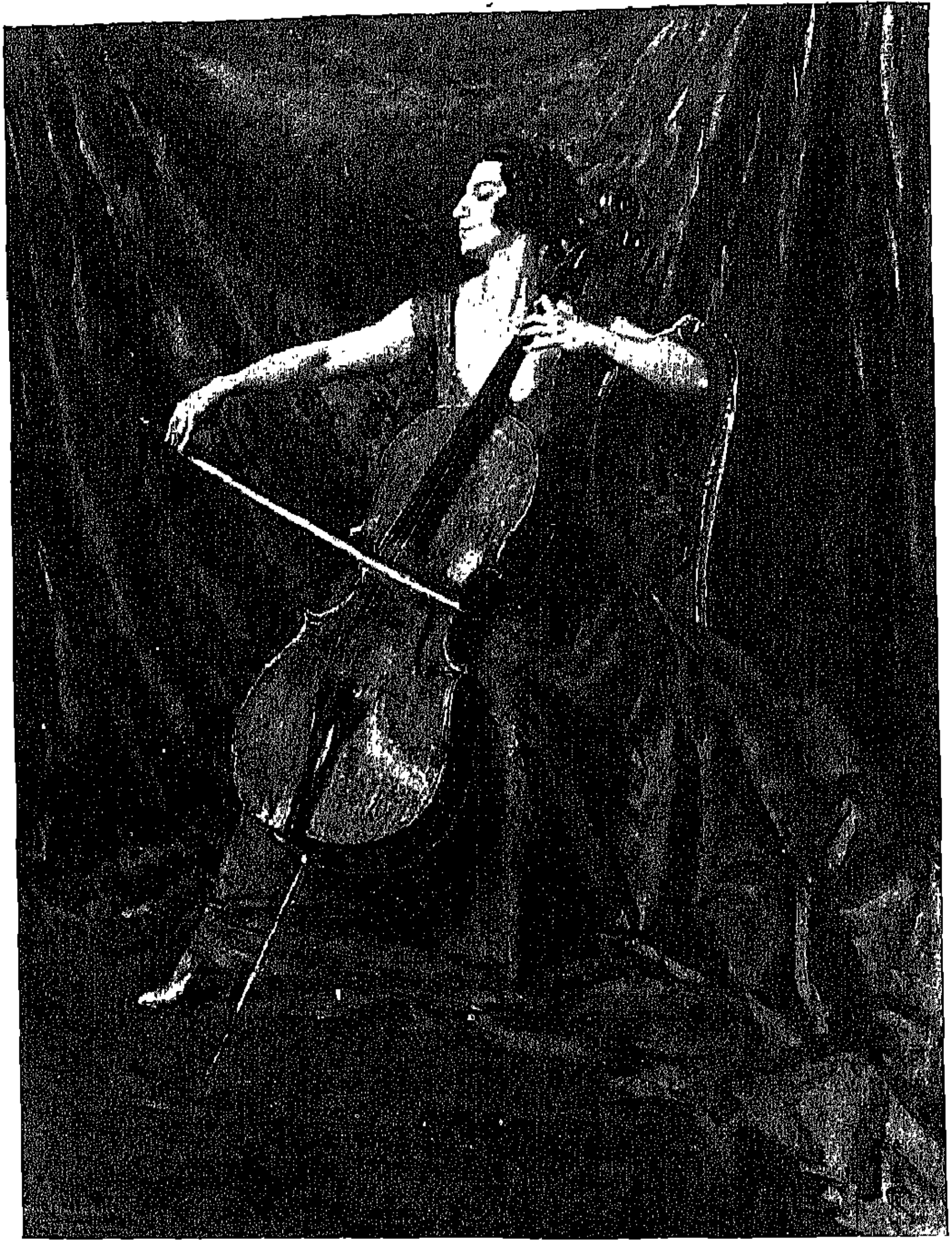


THE TEACHING OF MUSIC IN THE SENIOR SCHOOL



From the painting by Augustus E. John.] [*By courtesy of the Chenil Galleries,*

MADAME SUGGIA

This brilliant painting of a distinguished 'cellist shows Mr. John's extraordinary power of characterisation. It is a masterpiece of realistic force, and proves that in this respect the painter is second to no living man. The performer, who is posed against a background that is simple yet eminently decorative, makes an amazingly alive and forceful figure,

MUSIC IN THE SENIOR SCHOOL

Introduction.—In his article on Music in *The Encyclopædia Britannica* Sir Walford Davies says: "As there are three possible parties to any musical transaction, the composer or maker of music, the performer or reproducer of it and the listener or appraiser of it, it follows that the art of teaching, as applied to music, naturally falls into three categories; (1), the teaching of music itself; (2), the teaching of singing or playing some instrument or of conducting; and (3), the teaching of the appreciation of music. This last manifestly should be the same thing as (1), but without the creative incentive."

That is to say, in other words, that music is an active pursuit, something for which a conscious effort must be made in its creation, its performance, and indeed, its appreciation. Too often, largely as a result of the modern marvels for the recording and reproduction of sound, music is made to serve as a background for conversation, an accompaniment to a dinner party or a game of cards, and is allowed to occupy a place of the greatest indignity. This attitude must be changed.

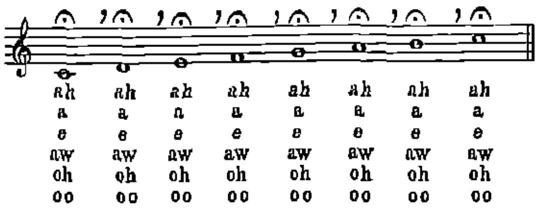
Teachers of music in schools have a great responsibility as well as a unique opportunity in their work to remedy this state of affairs. It is a striking and undeniable fact that the love of music, like the longing for God, is inherent in everybody, even the youngest; the teacher's task is to endeavour to develop this natural instinct by creating a general interest in the art, by encouraging accurate and artistic performance, and above all by inculcating and maintaining at all times the principles of good taste. That means that every child should have the opportunity of: (1), studying the general principles of the art, (2), becoming a performer, vocal or instrumental, solo or as a member of a group, (3), creating music himself, and (4), hearing as much as possible of the best music of the masters of all periods.

This series of articles and lessons is not intended to be exhaustive, nor does the writer presume to assert that it represents the only method of presenting music, in the broadest sense of the term, to a class; but rather, the intention is to suggest a basic plan, which has already proved successful, and to leave the individual teacher to expand and modify the ideas contained therein in the way that seems best suited to the solution of the difficulties which confront him personally. Most teachers find themselves handicapped by insufficient time for dealing adequately with this important and fascinating subject, usually one or two periods per week; in spite of this, however, by careful planning and thorough preparation of each lesson, a great deal can be accomplished in the time allotted to it.

Voice production.—This subject has been treated exhaustively in the following books:—*Voice Culture*—Bates, (Novello, 5s. 6d.), and *The Amateur Choir Trainer*—Coleman, (Oxford University Press, 3s. 6d.). It will suffice, therefore, in the present work, to mention a few of the major problems usually encountered by the teacher of class singing, and to suggest simple and efficient remedies. As a rule, it will not be possible to include many vocal exercises during a music lesson, neither is such a practice altogether essential or desirable. Too many exercises produce boredom, a state of mind which stultifies all progress. Much valuable time may be saved by singing tunes, familiar ones as well as those actually being learnt by the class, to vowels. By this means technical ability and artistic performance are achieved at one and the same time.

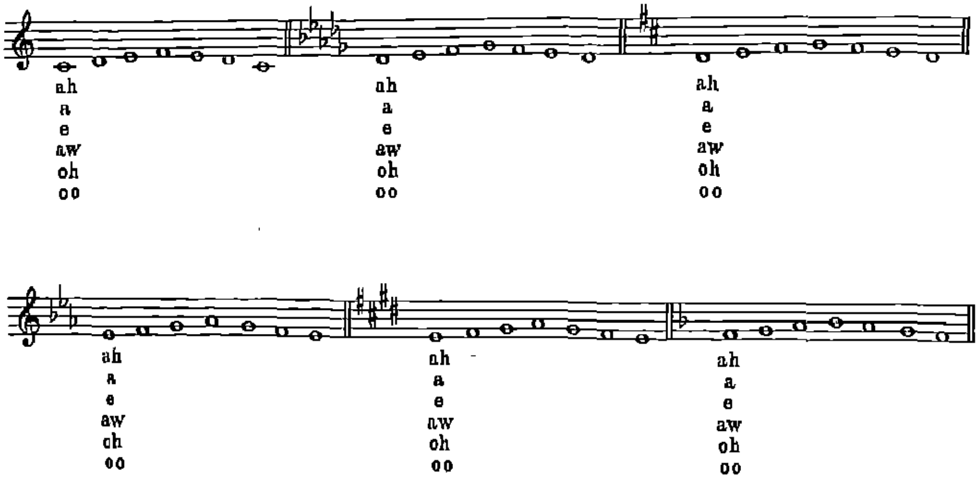
General directions.—The room should be well ventilated. Standing is the correct posture. The pose should be firm and upright, but not stiff. All singing should be done easily and without effort. Avoid shouting and loud singing.

Breath control.—Sustained notes. Take a deep breath. Count 1, 2, 3, slowly. Then sing the following notes to the given vowels, for 6 or 8 slow beats:—



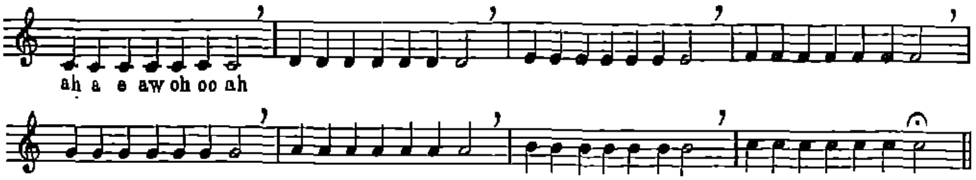
This exercise will also help to cultivate a keen ear; the note should be played on the pianoforte from time to time as the class is singing to prevent any variation in pitch.

Evenness of tone.—Slow scales. The aim should be to acquire uniformity of tone on all notes:—



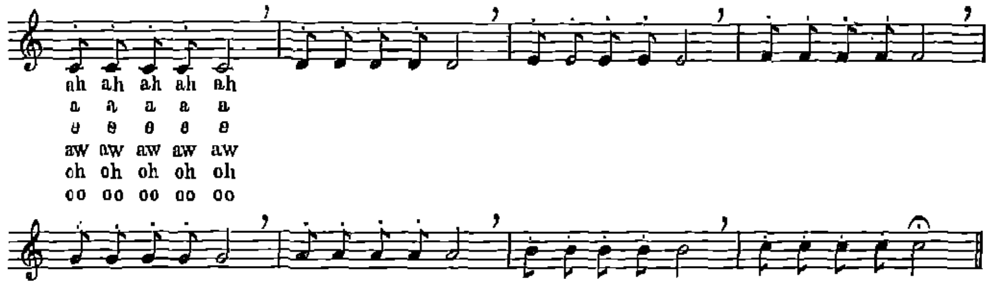
This exercise may be continued in other keys, as desired.

Vowel practice.—Changing vowels on a sustained note. This exercise involves correct shaping of the mouth for each vowel. There must be no break in the tone when changing from one vowel to the next:—



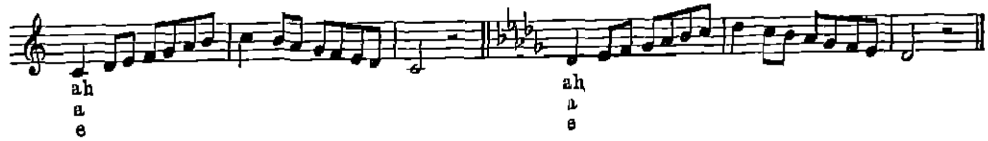
This exercise may be repeated in the keys of D♭, D, E, E♭ and F.

Attack.—Staccato notes. The start of a note must be clean and precise. There must be no sliding to the notes. Each note must be sung lightly and in a detached manner:—

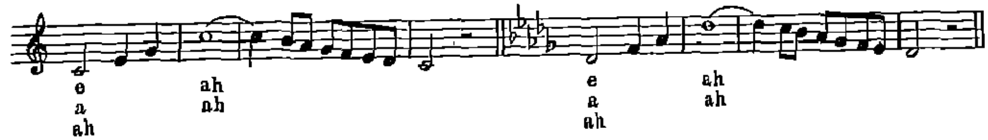


This exercise may be repeated in the scales of D♭, D and E♭.

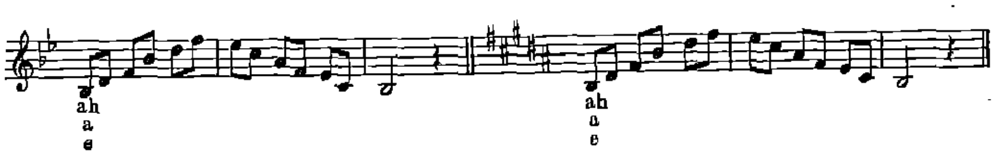
Flexibility.—Scales and arpeggios. These exercises should be sung quickly and rhythmically:—



This exercise may be repeated in the keys of D, E♭, E, F, G♭, and G.



This exercise may be repeated in the keys of D, E♭, E, F, G♭, and G.



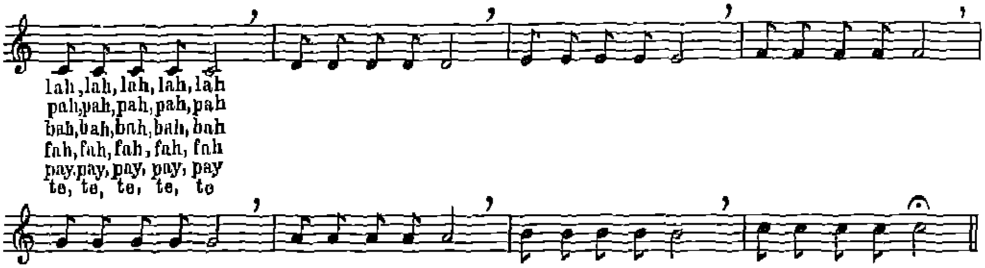
This exercise may be sung in both legato and staccato styles. Continue it in the key of C.

Huskiness.—Use the exercises given for evenness of tone and flexibility, especially to the vowels e and a.

Flat singing.—This may be due to bad ventilation of the room, tiredness, ill health or defective ear. To remedy the last mentioned cause, use the exercises given for breath control and evenness of tone.

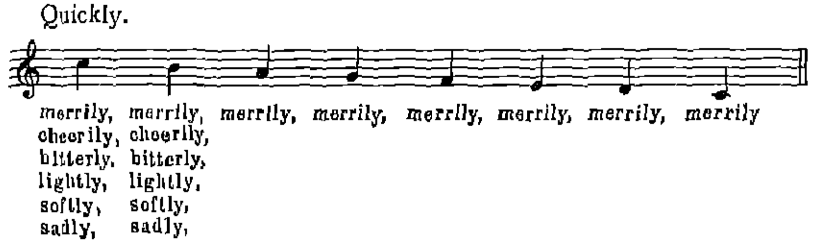
Sharp singing.—This is frequently due to forcing the voice and singing too loudly. Use the exercises given for breath control, evenness of tone and flexibility, and *insist* on quiet singing.

Consonants.—Clear diction depends very largely upon keen consonants; this involves the use of the lips and tongue:—

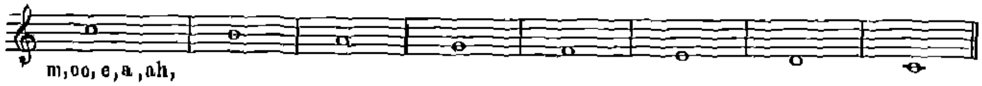


This exercise may be repeated in the keys of D♭, D, E♭, E and F.

The scales and arpeggios given under flexibility may also be sung to the above or other suitable syllables.



Resonance.—This gives the voice colour and carrying power. Use the exercises given for breath control and evenness of tone to a hum, either "m" or "n." Also the following:—

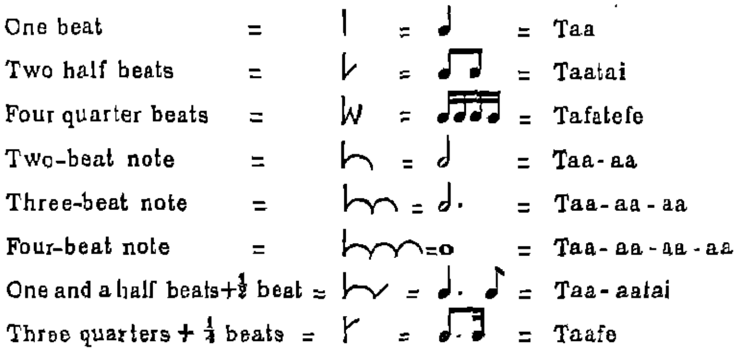


Aural work.—This is of the very greatest importance, and some time should be devoted to it at every lesson. A keen ear is essential for all performers and listeners, since music reaches the mind via the ear alone. The class should be encouraged to listen intently whenever they sing exercises or songs; a helpful aid to keen listening is to allow one half of the class to sing while the other half listens, and afterwards criticises what has been heard. The introduction of this competitive spirit should prove most salutary to the work of the class as a whole.

To train the class to become really accurate in their listening so that they know exactly what they have heard, dictation is essential. A few minutes at each lesson spent in the following way will greatly improve the "ear" of the class, an improvement which will show itself in the actual singing of the class.

Pitch.—On the pianoforte sound a note to be taken as *doh*. Then play, slowly, 3 or 4 notes, all equal in length, to which the class has to supply the tonic sol fa names. The replies may be given verbally or in writing. At first the notes given should be adjacent; later, wider leaps may be given. The number of notes may also be increased.

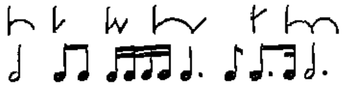
Rhythm.—The simplest method is to use the following system of shorthand:—



One beat =	= Taa
Two half beats =	= Taatai
Four quarter beats =	= Tafatefe
Two-beat note =	= Taa-aa
Three-beat note =	= Taa-aa-aa
Four-beat note =	= Taa-aa-aa-aa
One and a half beats+½ beat =	= Taa-aatai
Three quarters + ¼ beats =	= Taafe

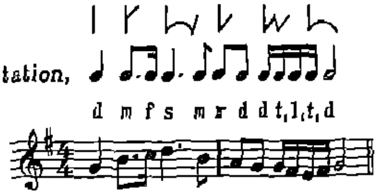
Simple rhythmic tests should be tapped, or the class may take down in shorthand, always writing in time to the test, the rhythm of a tune played on the pianoforte. When completed the test should be transcribed into staff notation.

For example:—



Later, the class should write down tunes from dictation, using the following method:—

1st STEP	**Shorthand,**	
2nd STEP	**Transcribe into Staff notation,**	
3rd STEP	**Tonic Solfa,**	d m f s m r d d t,l,t,d
4th STEP	**The Completed Tune,**	



The tune should be played slowly and rhythmically two or three times for the purpose of taking down the rhythm in shorthand, and two or three times more for the tonic sol fa. Before the completed tune can be written out the class must be told the key, and at first, also the time signature and on which beat of the bar the tune commences. Any of the tunes in this course of lessons could be used for dictation, either rhythmic, or for rhythm and pitch combined.

Sight reading.—The aim of all teachers should be to help their pupils to become efficient in reading at sight from staff notation. Much pleasure accrues from the ability to read music of reasonable difficulty without previous study, and the acquisition of a wide knowledge of the music of the masters, as well as the facility for the rapid study of much music which is to be performed, depend very largely upon it. This branch of the practice of music is often crowded out through lack of time, or avoided as difficult and unpopular in the class. Just a few minutes spent in a cursory manner at the beginning of each weekly lesson can hardly be expected to produce striking results; the ideal plan is, as is done in some schools, to devote a few minutes *daily* to the subject, when rapid progress can be made and the pupils become competent to read at sight quite difficult music. This is not always practicable; but if the exercises given at the end of each of the following lessons are worked conscientiously and systematically, and if the class is made to read through at a slow, but regular, speed any new song they are about to learn (or selected phrases from it, if the whole song is too difficult) quite good results will be obtained. Let the notes be sung at first to their tonic sol fa names; later it would be good to sing the tune straight away to "lah," and if the class is exceptionally good, the words as well might be sung at once.

Before beginning to read the tune, point out the position of *doh* from which all the other notes may be found. Here are two useful rules.

1. If *doh* is on a line, *me* and *soh* are on the next lines above.
   If *doh* is in a space, *me* and *soh* are in the next spaces above.
2. If *doh* is on a line, *doh'* is in a space, and vice versa.

It might also be pointed out to the class that inability to read at sight will deprive them of an immense amount of pleasure, and make the learning of even a simple song a laborious proceeding.

Tonic sol fa and staff notation.—The importance of the tonic sol fa system of notation cannot be over-estimated. In whatever key the music is written the relative pitch of all the notes of the scale is the same (e.g., *doh—soh*, or *lah—ray* always sound the same); the singer is materially assisted by having a definite name for each note (e.g., the second note of the scale is always *ray*); change of key during the course of a song is simplified (especially if the tune is pointed out on a modulator); and the singing of the euphonious names is beneficial for the production of good tone. In spite of these excellent features, the system should not be regarded as an end in itself, but rather as a means to an end: its use should automatically prepare for the study of staff notation. The class should be taught to read from both systems, to transpose music from one to the other, and finally to use staff notation only. Much music is not available in tonic sol fa, and indeed can never be; hence the importance of reading from staff notation.

Musical appreciation.—This should be the object of all music teaching, the cultivation of a love for and an appreciation and understanding of good music. All work in a music lesson, performing, listening and creating, can contribute to this end; allow the class to perform only the best music, (not necessarily difficult or abstruse works, for much of the simplest music is of very great beauty, e.g. folk songs, national songs); allow them to hear by wireless, gramophone, or better still by personal performance, only the best; and in their creative work, see that they follow good models.

The musical appreciation lesson proper will probably be devoted chiefly to listening. Here, listening will be prefaced by remarks from the teacher, in which his object is to point out interesting features in the music to be heard, to mention anything of note about the composer and the importance of his work, to endeavour to remove some of the many difficulties with which intelligent listening is beset, and to explain, as far as is possible in ordinary everyday language, some of the ideas which the composer has expressed in his music. These talks should be brief, and as simple and illuminating as possible; it is a helpful practice, where possible, to link the music with what has been learnt in a literature class (e.g., Shakespeare and Schubert), or to connect a composer with some great historical personage or event (e.g., Beethoven and Napoleon), by which means a keen and lively interest is aroused, and the class is more ready to listen intently and intelligently. The best results will be obtained by working to some carefully prepared syllabus, and not merely selecting pieces in a haphazard fashion. A term might be devoted to the dance forms (Bach and Handel suites, Chopin waltzes, polonaises and mazurkas), another to National music (Grieg, Dvorak), and a third to the modern British school (Stanford, Elgar). By this means the knowledge and experience gained by the class will be more orderly.

Conclusion.—The object of these music courses is to suggest a scheme for the treatment of the subject in as broad a manner as possible in the short time allowed for it in the time-table of the average senior school. It may be that in each lesson there is more work suggested than it is possible to accomplish in a single period, as local conditions vary so considerably; if this is the case, the remainder may be completed at the following lesson, according to the discretion of the teacher. This point must be stressed: to obtain the best results some part of each section should be attempted during each period, so that there is constant practice in all three branches,—performing, listening and creating. The other arts,—literature, drawing, etc.—are treated in the broadest possible way with great success, and it is an encouraging portent that it is becoming far more usual in senior schools to-day to treat music in the comprehensive manner outlined in these lessons, thus bringing it into line with the other subjects to be found in the school curriculum.

Other school activities.—There will always be a certain number of children who are specially interested in music and who show a marked ability for it. These should be further helped and encouraged in one or more of the following ways.

1. *School choir.*—This could be used to lead the singing at morning assembly, to perform at school functions, and with the assistance of the school orchestra and the school dramatic society, to give concerts to parents and friends of the school.

2. *School orchestra.*—This would vary greatly in constitution according to local conditions. In some schools there may be only violin players available, in others viola and 'cello players might be added, while in the more fortunate schools there would be wind instruments as well. Even if there are only three or four players, the orchestra could be started and in time it would undoubtedly increase; children who heard it would be inspired to learn an instrument themselves. There could also be a class for beginners from which the orchestra would be recruited. The orchestra could play the hymns at morning assembly and combine with the choir and other school societies to give concerts.

3. *Music club.*—This might be used for extra appreciation talks, gramophone recitals or discussions; singers and players from outside the school would come to give a programme of music; visits to concerts, inspections of organs, etc., might be made.

4. *School library.*—Books about music generally, the lives of the composers, articles about great works of music that are shortly to be heard on the wireless, etc., etc., should always be available in the library.

FIRST YEAR'S COURSE
OF
MUSIC

I. NOTES

YOU *cannot remember* the time when you could not speak, and probably you can only just remember when you began to learn to read and write. You learnt to speak by copying the sounds that your parents made. They pointed to a certain animal and called it, "a dog". Then you always knew what to call a dog when you saw one; but you could not have written the word, nor read it from a book. You had not learnt the alphabet and the sound that each letter stands for. Now you know that the letters a, b, c, d, etc., all stand for certain sounds; you can arrange them in all sorts of ways to make words.

So with music. You can listen to music and enjoy it; you can sing tunes after they have been sung or played to you; sometimes, almost without thinking, you make up tunes and sing them to yourself. But you cannot write them down because you do not know the Musical Alphabet. This we are now going to learn.

The signs we use in music are called NOTES. One thing you must know about a note is *how long it is*: this is shown by the shape of the note. Here is a list of the notes with their names. Each note is twice as long as the one that follows it:—

𝅜	Breve.	If we halve	this note,	we get	a	Semibreve.
𝅝	Semibreve.	,,	,,	,,	,,	Minim.
𝅗𝅥	Minim.	,,	,,	,,	,,	Crotchet.
♩	Crotchet.	,,	,,	,,	,,	Quaver.
♪	Quaver	,,	,,	,,	,,	Semiquaver.
𝅘𝅥𝅯	Semiquaver	,,	,,	,,	,,	Demisemiquaver.
𝅘𝅥𝅰	Demisemiquaver					

These notes and their names must be learnt thoroughly.

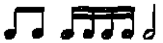
Exercises for the Manuscript Book

A. Easy.

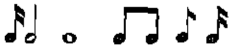
1. Name the longest note we use in music. Write one.
2. How many minims are equal to one semibreve?
3. How many quavers are equal to one semibreve?
4. How many semiquavers are equal to two minims?
5. Write a note equal in value to four crotchets. Name it.
6. Write a note half the value of a minim. Name it.

B. More Difficult.

1. How many demisemiquavers are equal to one semibreve?
2. What note is $\frac{1}{16}$ of a breve?
3. What note is $\frac{1}{8}$ of a minim?
4. Write and name the note which is equal to all the following notes added together:—



5. Add these notes together and write *one* note equal in value:—



II. TIME

In the last lesson we learnt something about the length of a note. We know, for instance, that *there are two minims* (𝅗𝅥𝅗𝅥) *in a semibreve* (𝅝), *and four semiquavers* (𝅘𝅥𝅯) in a crotchet (♩). As a matter of fact, that tells us only *roughly* how long a note is; we must now learn how to find its *exact* length.

We measure the length of notes in music by BEATS or PULSES. You have all felt the pulse in music. Quite often when singing or listening to music you must have felt that you simply had to tap your foot. If your teacher were to play a march now, you would feel that you wanted to beat the time—left! right! left! right! A beat or pulse is always present in music, and by it the composer can tell us exactly how long we have to play or sing every note he writes.

For example: he may want us to feel one beat or pulse on every crotchet. Then if he *wrote a minim (𝅗𝅥), we should have to feel two beats on it because there are two ♩ in one 𝅗𝅥*

If he wrote a semibreve (𝅝), we should have to feel *four* beats on it.

If he wrote a quaver (♪), we should have to sing or play for just half of the time between one pulse and the next.

If he wrote a semiquaver (𝅘𝅥𝅯), we should have to sing or play it for one quarter of the time between one pulse and the next.

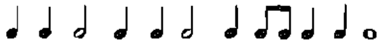
Sometimes a composer wants us to feel one beat on each minim or on each quaver; then the values of all the other notes are changed to fit in with this new pulse or beat. One beat on a minim means half a beat on a crotchet. One beat on a quaver means two beats on a crotchet.

Exercises

A. Easy.

1. *Think* these exercises in your mind, keeping the exact time. Now sing them quietly to *lah* or tap them, making *one beat* on each *crotchet*:—

a)



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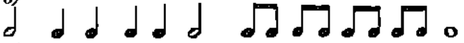

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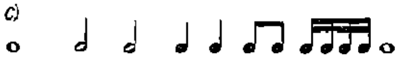
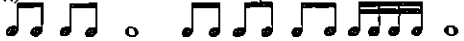


d)



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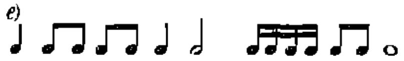
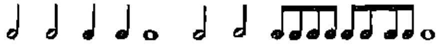


2. In your manuscript book answer the following questions:—
   (*a*) If there is one beat on a minim, tell how many beats, or how much of a beat, there is on each of these notes: ♩., 𝅘𝅥𝅯, 𝅝, ||𝅜||
   (*b*) If there is one beat on a quaver, write the notes that are equal to 4 beats, 2 beats, ¼ beat, ½ beat and 8 beats. Name each note you write.

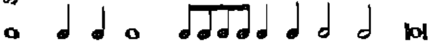
B. More Difficult.

1. *Think* these exercises in your mind, keeping the exact time. Then sing them quietly to *lah*, or tap them, making *one beat* on each *minim*:—

a)



b)



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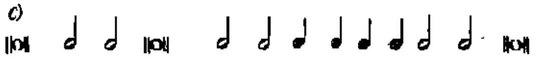

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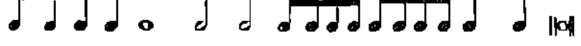
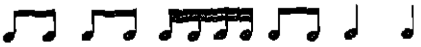


2. Treat these exercises as those in Question 1, but count *one beat* on each *quaver* :—

a)



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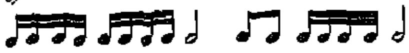

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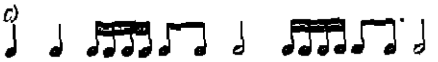

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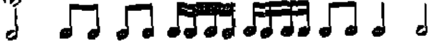
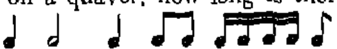
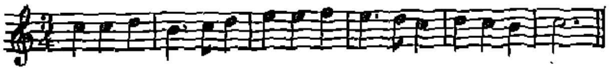


3. In your manuscript-book answer the following questions :—
   - (*a*) If there is one beat on a quaver, how long is there on all the following notes added together? 
   - (*b*) If there is one beat on a minim, write the notes that are 4 beats, ¼ beat, ⅛ beat, 2 beats, and ½ beat. Name each note you write.

III. TIME SIGNATURE—1



This is the first line of our National Anthem. There are two things you should notice about it :—

1. You will see that as in all other music, from time to time there are vertical lines between notes. These are called BAR LINES. They occur regularly, that is to say, if you add up the notes between any two of them, you will find they equal 3 crotchets. The space between the two bar lines is called a BAR.
2. Notice the two numbers at the beginning, which are called the TIME SIGNATURE.

Now let us discover what the time signature tells us. In arithmetic, you will have learnt about vulgar fractions. Each of the two numbers in a vulgar fraction tells you something important : the denominator shows you that you have taken a whole, complete thing, and divided it into that number of parts ; and the numerator tells you how many of those parts you have taken. Let us consider the vulgar fraction $\frac{3}{4}$. It shows you have divided the whole into 4 parts, and taken 3 of the parts.

So it is with the time signature : the lower number (denominator) tells you into how many parts you have divided the whole, and the upper number (numerator) tells how many of those parts are being taken. When dealing with time in music, *the whole is the semibreve.* If then you have the time signature $\frac{3}{4}$ this is what it means : you have taken a semibreve and divided it into 4 parts (*i.e.*, into crotchets, ♩) and taken three of the crotchets.

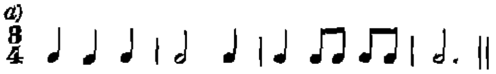
Now to explain the meaning of the time signature in another way : The *lower number* tells you what kind of note equals one beat. The *upper number* tells you how many beats there are in the bar. $\frac{3}{4}$ means three crotchet beats in each bar. As we saw at the beginning, *God Save the King* is written in that time.

A. Easy.

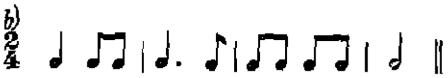
Exercises

1. *Think* the following exercises, keeping the exact time. Now sing them quietly to *lah*, or tap them. *N.B.*—A dot after a note makes it half as long again. Thus, the last note of the first exercise is 2+1 = 3 beats. A ♩. = 1 + ½ = 1½ beats.

a)



b)



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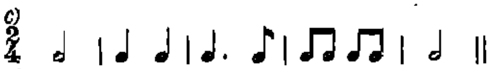

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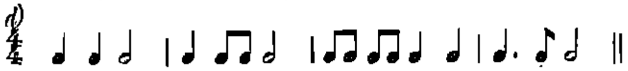
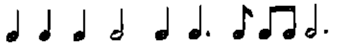
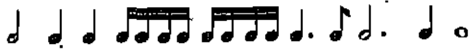


2. Answer the following questions in your manuscript book :—
   - (*a*) What does the denominator of the time signature tell you ?
   - (*b*) What does the numerator of the time signature tell you ?
   - (*c*) What is the meaning of $\frac{5}{4}$?
   - (*d*) *The following exercise is in* $\frac{3}{4}$ *time.* Add the bar lines :—



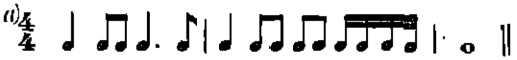
   - (*e*) Add the bar lines to this exercise, which is in $\frac{4}{4}$ time :—



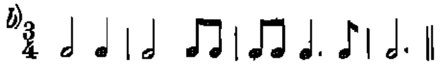
B. More Difficult.

1. *Think* the following exercises, keeping the exact time. Now sing them quietly to *lah*, or tap them :—

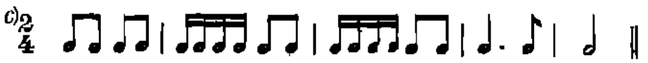
a)



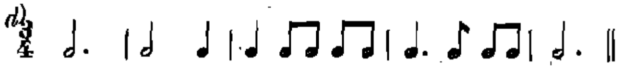
b)



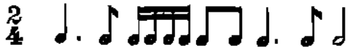
c)

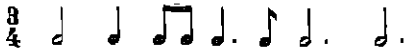


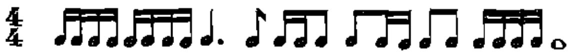
d)



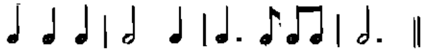
2. Answer the following questions in your manuscript book :—
   - (*a*) Explain bar line, bar, and time signature.
   - (*b*) Explain carefully the meaning of $\frac{9}{8}$, $\frac{4}{2}$, and $\frac{3}{1}$.
   - (*c*) Add bar lines to the following exercises :—

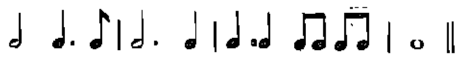


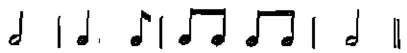




   - (*d*) Add time signatures to the following :—







IV. TIME SIGNATURE—2

In Lesson II you learnt that a composer may choose any note he wishes to be equal to one beat,—crotchet, minim or quaver, etc. He shows which of these notes he has chosen by the lower number of the time signature. If a crotchet equals one beat, then the lower number, as you learnt in Lesson III, is a 4. Now you must learn what other time signatures are often used.

The longest note ever used as one beat is a semibreve.

If the lower number is 1, the *semibreve* is equal to one beat.

If the lower number is 2, the *minim* (*i.e.*, $\frac{1}{2}$ of a semibreve) is equal to one beat.

If the lower number is 4, the *crotchet* (*i.e.*, $\frac{1}{4}$ of a semibreve) is equal to one beat.
If the lower number is 8, the *quaver* (*i.e.*, $\frac{1}{8}$ of a semibreve) is equal to one beat.
Here are a few common time signatures :—

$\frac{2}{1}$ means two semibreves in each bar.

$\frac{3}{2}$ means three minims in each bar.

$\frac{2}{4}$ means two crotchets in each bar.

$\frac{6}{8}$ means six quavers in each bar.

$\frac{4}{4}$ is called Common Time and is sometimes shown C.

$\frac{2}{2}$ is sometimes shown ₵.

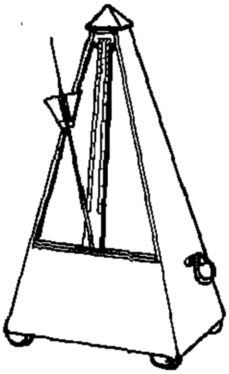
In some pieces the beat is quick, and in others slow, or very slow. For instance, the beat in a quick march is much faster than the beat in a funeral march.

The composer shows you how fast the beat must go in *two* ways :—

1. *By words, frequently Italian, placed at the beginning of the music.*—Italian words are common, because at one time, *e.g.*, in the time of Handel, Italy was considered to be the home of music, and Italian composers would naturally use their own language. In those days it was quite usual for musicians from other countries to go to Italy to finish their training, and so they got into the habit of using Italian musical terms. Handel, himself a German, did this. These are some of the most common Italian words used to describe the speed of music :—
   Presto—very quick.
   Allegro—quick and lively.
   Moderato—at a moderate pace.
   Andante—at a walking pace.
   Adagio—slowly.
   Largo—very slowly.

   These words give only the *approximate* speed of the music.
2. *By Metronome marks.*—You will frequently find at the beginning of a piece of music, this : ♩=72. That means there must be 72 crotchet beats per minute. In order to test the speed of the beat, an instrument called a METRONOME is used. This consists of a pendulum which can be set swinging at the exact number of beats per minute which you require.
   𝅗𝅥=48 means 48 minim beats per minute.
   ♩=144 means 144 quaver beats per minute.

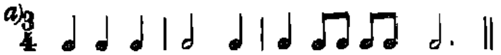
By means of the metronome, you can get the *exact* speed of the music.

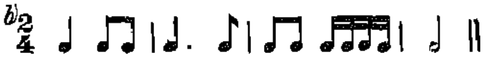


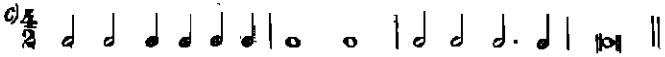
Exercises.

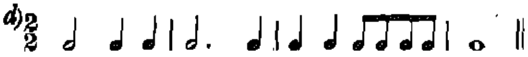
A. Easy.

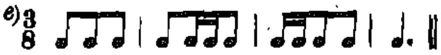
1. What kind of note equals one beat if the lower number of the time signature is 4, 2, 1, 8 ?
2. What is meant by the following time signatures ? $\frac{3}{4}$, $\frac{5}{2}$, $\frac{3}{8}$, $\frac{4}{1}$.
3. Explain the following words : allegro, andante, presto, largo.
4. Explain : ♩=120.
5. Here are some more reading exercises. *Think* them first, and then sing them quietly to *lah*, or tap them :—

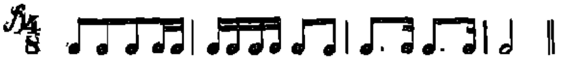






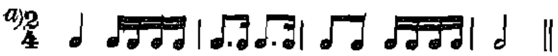


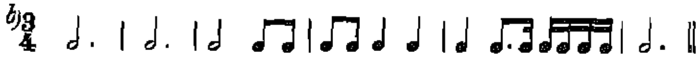


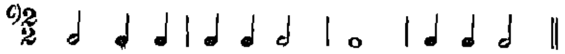


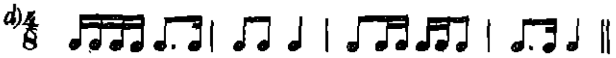
B. More Difficult.

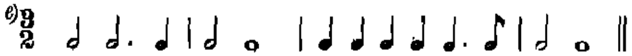
1. Give the lower number of the time signature where :—
   - (*a*) a minim equals one beat.
   - (*b*) a quaver equals one beat.
   - (*c*) a semibreve equals one beat.
   - (*d*) a crotchet equals one beat.
2. Give the full meaning of $\frac{5}{8}$, $\frac{4}{2}$, $\frac{3}{1}$, $\frac{12}{16}$.
3. In what ways does a composer state his wishes about the speed of his music ?
4. What is the meaning of : allegro, presto, andante, largo ? Arrange these words in order, from slow to quick.
5. Exercises for reading, to be treated as before :—





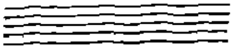




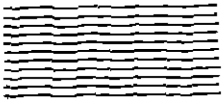


V. PITCH

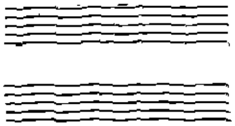
So far we have been concerned chiefly with the *length* of the note. This is shown by its *shape*. Now we must consider its *pitch*, that is, whether it is high or low. For this purpose we need a series of five lines called a STAVE, thus :—



Until the sixteenth century, music was almost entirely vocal. Nearly all the notes to be sung by the various voices, could be placed on a series of *eleven* lines, called the GREAT STAVE, thus :—

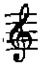
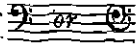


As you see, it would be extremely difficult to read notes written on it. So the middle line was removed, and we have the two staves, of *five* lines each, which we use so often to-day, thus :—

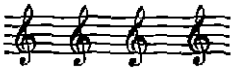


The note that was written on the line that we have removed is middle C. This is the C in the middle of the pianoforte.

Now it is important that we should know whether we are using the top stave of five lines or the lower. For this purpose we use a sign at the beginning of each stave called a CLEF.

The most common clefs are the TREBLE or G CLEF  and the BASS or F CLEF 

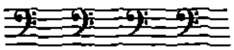
When writing these clefs you must be most careful to get them in exactly the right positions. The treble or G clef must be written so that it rests on the bottom line of the stave, and the curve goes round the second line. This is the *G line* from which the clef gets its name, thus :



Treble or G Clef.

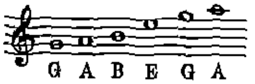
Now you know the position of G, you can find the position of all the other notes on the treble stave.

The bass or F clef must be written so that the curve at the top goes round the fourth line, and the two dots are on each side of the fourth line. This is the F line, from which the clef gets its name, thus :—

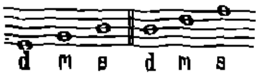


Bass or F Clef.

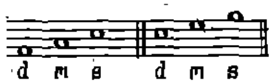
Now that you know the position of F, you can find the position of all the other notes on the bass stave.

The notes in music are named from A—G. The note above G, is A. 

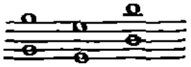
It is very necessary to be able to read music from *staff notation* as it is called, and not only from tonic sol-fa. The following two rules for reading from staff notation are most helpful to remember :—

1. If *doh* is on a line, *me* and *soh* are on the next lines above : 

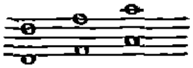
If *doh* is in a space, *me* and *soh* are in the next spaces above :



2. If *doh* is on a line, *doh'* is in a space :—



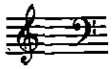
If *doh* is in a space, *doh'* is on a line :—



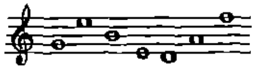
Exercises

A. Easy.

1. Explain the following terms : stave, great stave, clef.
2. What are the full names of the following signs ? Give reasons why they are called by these names.

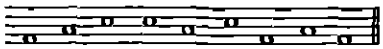


3. Give the letter names of the following notes :—

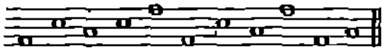


4. On a treble stave write the following notes : B, C, F, E, G, D, A.
5. Sing the following exercises, *slowly and in regular time*, counting *two beats* on each note. The first note in each case is *doh*, and all the notes belong to the *doh* chord (d, m, s, d') :—

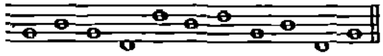
a)



b)



c)



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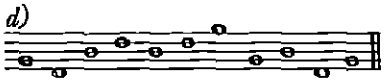

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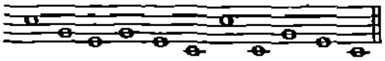
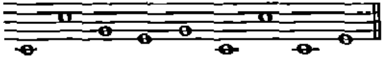


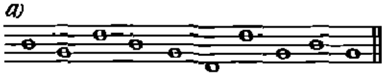
f)



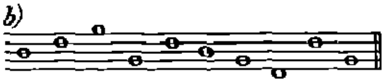
B. More Difficult.

1. Explain how the common stave of five lines is obtained from the great stave.
2. Explain the use of a clef. Give the full names of the two clefs in common use to-day. Of what must you be careful in writing them ?
3. Give two rules which are helpful when reading the notes on the stave to their tonic sol-fa names.
4. Sing the following exercises, *slowly and regularly in time*, counting *one beat* on each note. The first note in each case is *me* and all the notes belong to the *doh* chord :—

a)



b)



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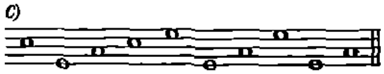

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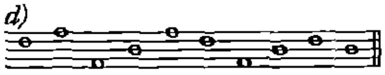
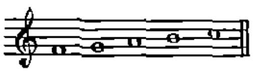
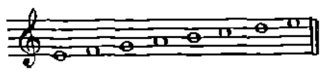


VI. SCALES



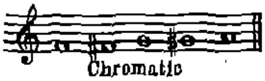


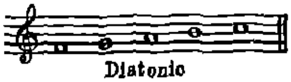
The two series of notes given above are called SCALES. The number of notes more than three does not matter. The thing that *does* matter is that the notes should be next to each other on the stave. A SCALE is a series of notes in alphabetical order. There are *two* main kinds of scale in common use to-day; they are CHROMATIC and DIATONIC.

A CHROMATIC SCALE consists entirely of *semitones*. You must now understand what a semitone is. If you play a note on the pianoforte and then go to the next nearest note, whether it is white or black, you have played a semitone. So that if you play a series of notes on the pianoforte, and always move to the next nearest note, whether it is white or black, you will obtain a CHROMATIC SCALE. For example, if you play on the pianoforte from F—F, using *all* the notes, both white and black, you will obtain a chromatic scale (13 notes).

A DIATONIC SCALE contains both tones and semitones. You will know, of course, that the word *semi* means half: *two semitones*, therefore, make *one tone*. For example, if you play on the pianoforte from F—F, using only the white notes, you will obtain a diatonic scale (8 notes).

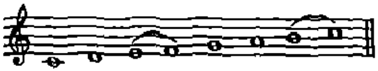
Now looking at the writing of these scales:—


Chromatic

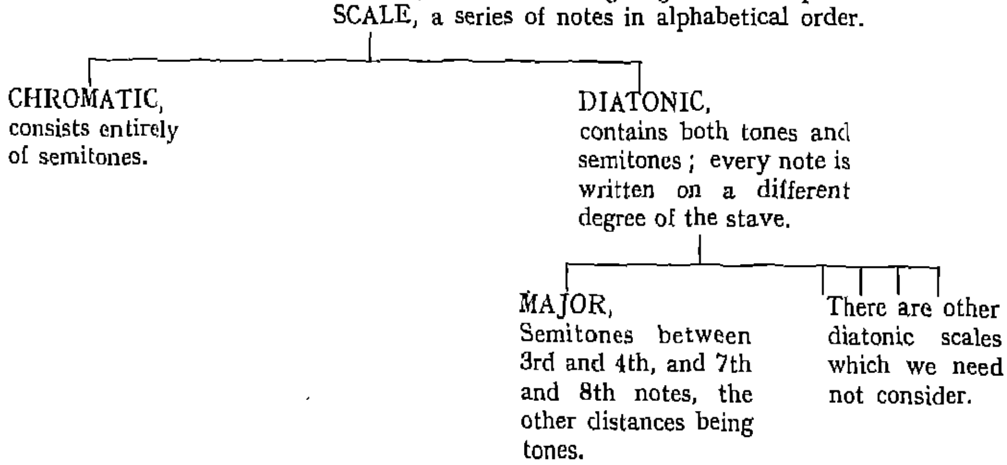

Diatonic

The sign ♯ is called a *sharp*. The effect of a sharp is to raise the note by one semitone. The notes in the first example are F, F sharp, G, G sharp and A. The thing to notice is that the first two notes occupy the same position on the stave. The same is true of the third and fourth notes. If you examine the second example you will find that *every note is written on a different degree of the stave*. It is from this feature that the scale gets its name—*diatonic* means "through the tones".

You already know that a diatonic scale contains both tones and semitones. If the notes are so arranged that the semitones occur between the 3rd and 4th notes, and the 7th and 8th notes, all the remaining distances being tones, you have a MAJOR SCALE. Therefore, a MAJOR SCALE is a *diatonic* scale, whose semitones occur between the 3rd and 4th notes, and the 7th and 8th notes, thus:—


The slurs mark the semitones

All that is a little hard to remember, but the following diagram will help:—



SCALE, a series of notes in alphabetical order.

CHROMATIC,
consists entirely
of semitones.

DIATONIC,
contains both tones and
semitones; every note is
written on a different
degree of the stave.

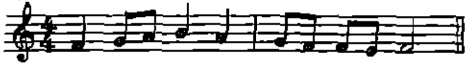
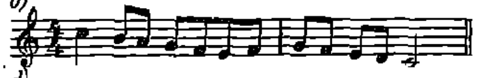
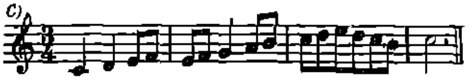
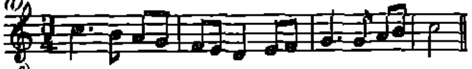
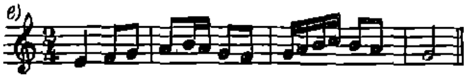
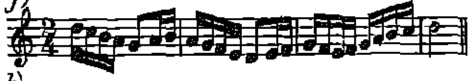
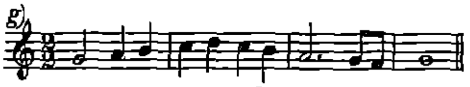
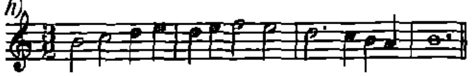
MAJOR,
Semitones between
3rd and 4th, and 7th
and 8th notes, the
other distances being
tones.

There are other
diatonic scales
which we need
not consider.

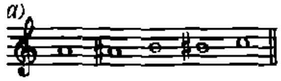
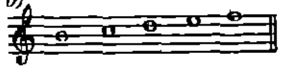
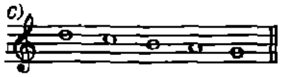
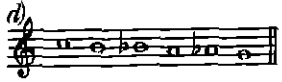
Exercises

A. Easy.

1. Sing the following exercises using the tonic sol-fa names for the notes. They consist entirely of scales; *there are no leaps*. Each exercise begins on *doh*:—

a)

b)

c)

d)

e)

f)

g)

h)


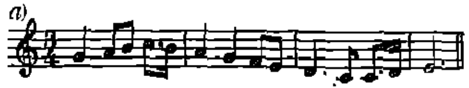
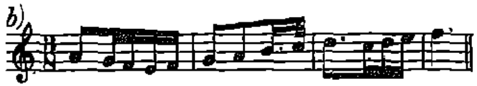
2. What is a scale?
3. What is a chromatic scale?
4. What is a diatonic scale?
5. What is a major scale?
6. Which of the following scales are chromatic, and which are diatonic?

a)

b)

c)

d)


7. What effect does (*a*) a sharp, (*b*) a flat, have upon a note?

B. More Difficult.

1. Sing the following exercise to *lah*. Each one begins on *me*:—

a)

b)

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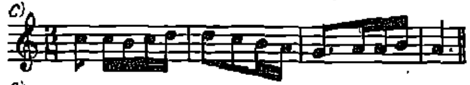
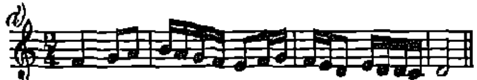
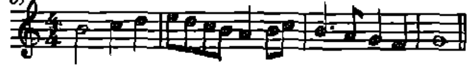
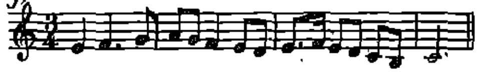
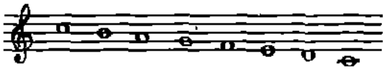
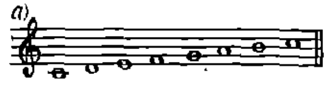
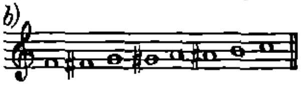
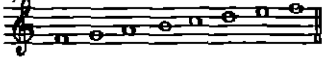

d)

e)

f)


2. This is a major scale. Mark the positions of the semitones with slurs (⌒):—



3. Listen to the following scales played upon the pianoforte. Then write down which are *chromatic*, which are *diatonic*, and which are the special kind of diatonic scales called *major*. The tonic sol-fa names of the notes of a major scale are, d, r, m, f, s, l, t, d':—

a)

b)

c)


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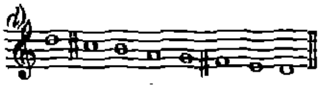

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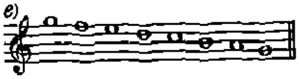
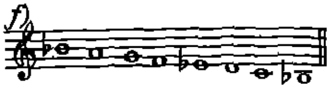


f)


4. Write down any differences you know between chromatic and diatonic scales.
5. Write down, from memory, the table given in the lesson as an aid to remembering how to describe the various kinds of scales.

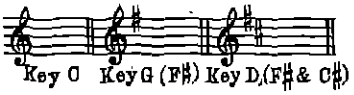
VII. KEY

A MAJOR SCALE is a *diatonic* scale whose semitones occur between the 3rd and 4th notes, and the 7th and 8th notes. If you play on the pianoforte a scale from C—C, using only white notes, you will get a major scale. This is called SCALE OF C MAJOR because C is the principal note.

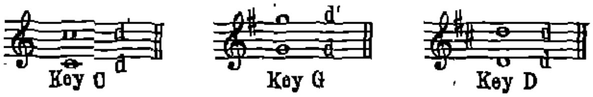
If you play on the pianoforte a scale from G—G, using only white notes, you will get a diatonic scale, but *not* the special kind called a major scale, because there is no semitone between the 7th and 8th notes. To make this into a *major* scale you would have to use F♯ instead of F. This scale would then be the SCALE OF G MAJOR.

When a composer writes a piece of music he decides to use the notes in a certain scale, or key. Suppose he wanted to write in the key of G major. He would have to tell the player or singer that he wanted F♯ instead of F. If there were many of these notes in his piece, it would be a great nuisance to have to keep putting in sharps. Instead, this is what he does. He puts the F♯ *once* at the beginning of the music (and generally at the beginning of each line, as a reminder), and the performer then knows that he intends F sharp all through the piece.

Any sharps or flats placed at the beginning of the music are called the KEY SIGNATURE. Every key, except the key of C major, needs a key signature.



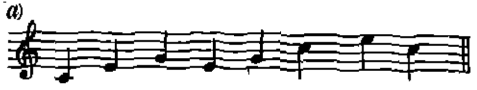
Before you can begin to write in any key, you must know the position of the *key note* or *doh* :—

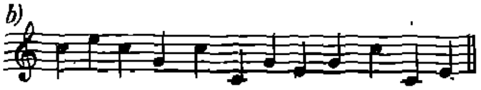


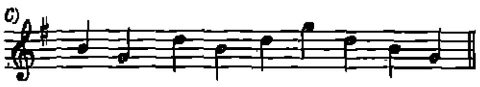
Exercises

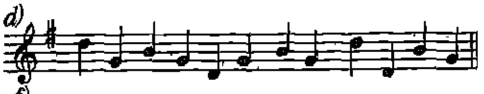
A. Easy.

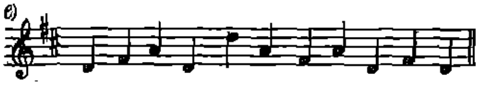
1. What is a major scale?
2. Why, if you play from G—G on the pianoforte, do you not get a major scale?
3. What is the name given to the sharps placed at the beginning of a piece of music?
4. Write the key signatures of the following keys, and mark the position of *doh* :—G, C, D.
5. Prepare a stave for the key of G. Then write these notes : s, m, d', d, f.
6. Prepare a stave for the key of D. Then write these notes : m, s, d', s, d, r, t.
7. Sing the following exercises, using the tonic sol-fa names for the notes. Name the key of each exercise. All the notes belong to the *doh chord*.

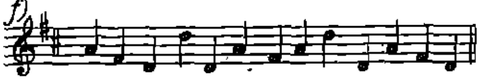
a)


b)


c)


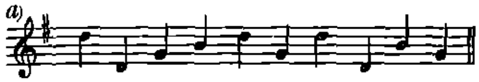
d)


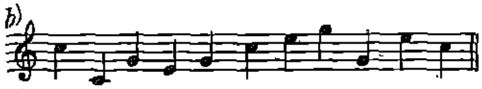
e)


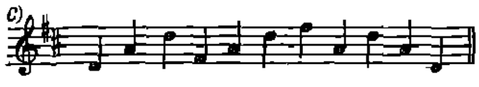
f)


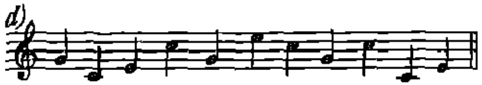
B. More Difficult.

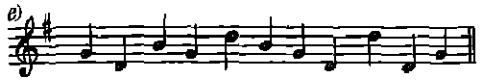
1. What kind of scales do you obtain if you play on the pianoforte using only white notes, from C—C, G—G, F—F, D—D?
2. Prepare a stave for the key of G. Write the following notes in minims: s, m, l, s, d', d', t, d'. Try to imagine what the tune sounds like, and write down its name.
3. Why is a key signature used in music?
4. Sing the following exercises, using the tonic sol-fa names for the notes. Name the key of each exercise:—

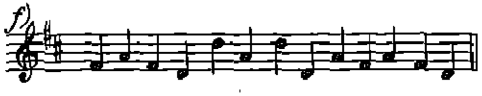
a)


b)


c)


d)


e)


f)


VIII. TUNE WRITING

1—Rhythm

Nearly everybody is able to compose little tunes. At some time or other, possibly when you have been specially pleased or happy, you have felt bound to sing; very likely you made up the tune, almost without thinking, as you went along. Now *you want to learn to write down* such tunes.

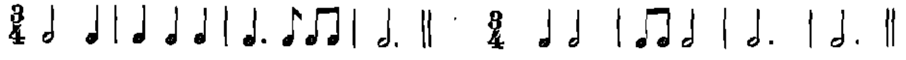
That sounds difficult; it may be. But, at first, so was the writing of words. You had to think of the sounds of the letters, spell out the words, and then write them down very slowly and carefully. Now, after years of continuous practice, you are able to write quickly and freely. What you have done with words, you can do with music.

We must consider two important things about all tunes:—

1. RHYTHM. 2. MELODY (this must be left for Lesson IX).

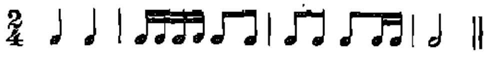
RHYTHM. This is the swing or lilt of the tune.

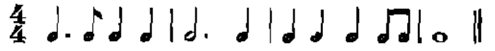
Tap these two examples of rhythm:—



The first one is *good*; it flows along quite easily.

The second one is *bad*; it does not flow: after every bar there is a stop.

Here is a good rhythm in $\frac{2}{4}$ time:— 

Here is a good rhythm in $\frac{4}{4}$ time:— 

All your tunes must have an interesting and flowing rhythm. Notice these points in the three rhythms which have just been called *good* :—

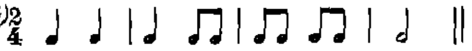
1. The longest note is generally at the *beginning* of the bar. Composers do not *always* follow this rule ; their musical sense tells them that sometimes a fine effect may be produced even if they do *not* follow it. But for the present, you should always put the *longest* note at the *beginning* of the bar to allow the tune to flow.
2. The last note of the tune comes on the *first* beat of the last bar. This gives the tune a strong ending. In a bar with *four* beats in it, you may end sometimes on the *3rd beat*, which is also strong.

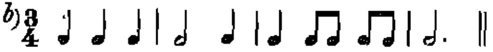
Follow these two rules, and you will find that many of the difficulties of writing good rhythms will disappear.

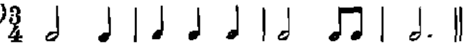
Exercises

A. Easy.

1. Think through these rhythms, and then tap or sing them :—

a)


b)


c)


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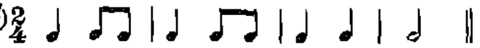
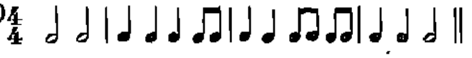
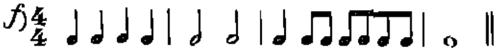
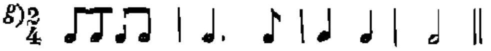
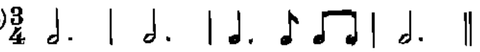


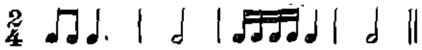
e)


f)


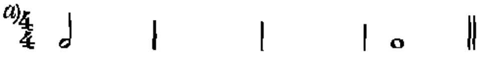
g)


h)


2. What is meant by the rhythm of a tune ?
3. Is the following rhythm good or bad ? Give your reasons :—



4. Using only crotchets, quavers, and minims, complete the following rhythms :—

a)


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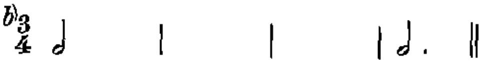

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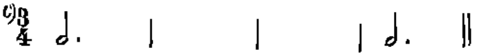

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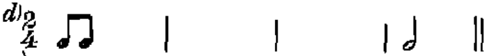

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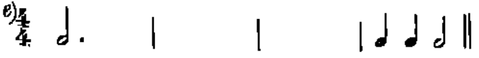

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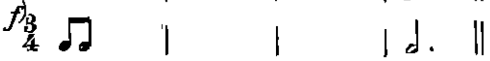
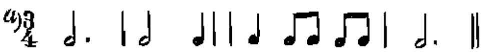
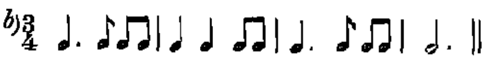
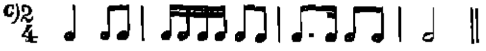


B. More Difficult.

1. Think through these rhythms, and then tap or sing them :—

a)


b)


c)


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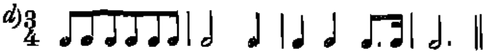
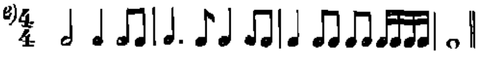
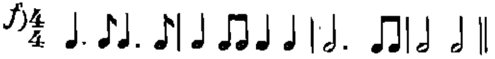
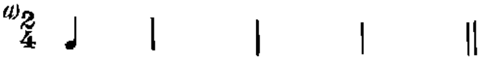


e)


f)


2. Complete the following rhythms, using no note shorter than half a beat :—

a)


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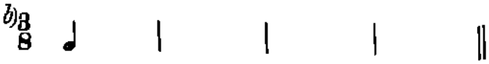

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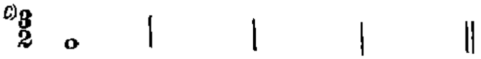

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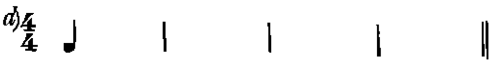
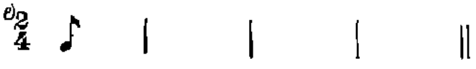
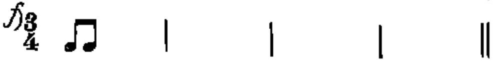
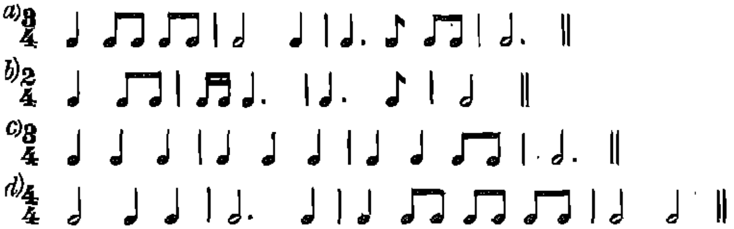


e)


f)


3. Write short rhythmic phrases, each 4 bars in length, in the following times: (*a*) $\frac{4}{8}$ time, (*b*) $\frac{2}{2}$ time, (*c*) $\frac{3}{4}$ time.
4. Do you think the following rhythms are good or bad? If bad, give your reasons:—

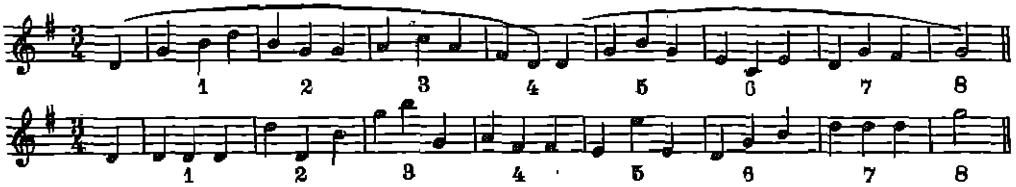


IX. TUNE WRITING

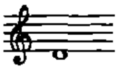
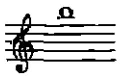
2—Melody

In the last lesson you learnt that there are *two* important things to consider in writing a good tune—RHYTHM and MELODY. You have had practice in writing rhythms; now let us discover some features which go to make a good MELODY.

Examine these two examples:—

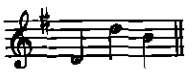
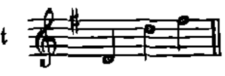


The rhythm is the same in both cases. The first tune, *The Ash Grove*, is excellent. The second is so bad and full of mistakes that it cannot rightly be called a tune at all. Here are the reasons why the second example is bad:—

1. It has too many repeated notes in bars 1 and 7.
2. It has too many big leaps in bars 2 and 3.
3. It has too wide a compass. That is to say, only very few voices that can sing well on  can also sing well on 
4. It has no shape. The first tune, you notice, rises and falls in gentle waves; the second leaps from note to note without any plan at all.

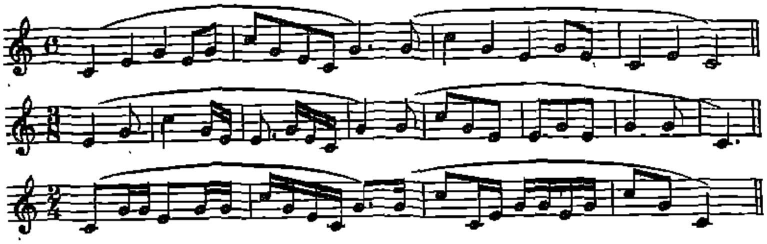
Now think of some of the points to be seen in all good tunes:—

1. It rises and falls in gentle waves.
2. There may be a *few* repeated notes, as in bars 2 and 4 of *The Ash Grove*.
3. It should not move too long in one direction.
4. After a big leap it should move in the opposite direction, *e.g.*:—

 not 

At present, when you write tunes, imagine that you are writing them *for yourself to sing*; you will then write them more in the style of *The Ash Grove* and not like the second example.

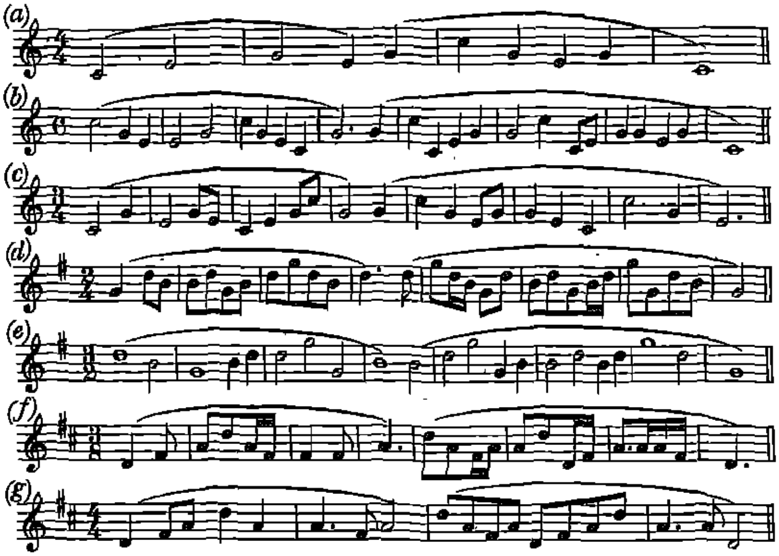
The DOH chord consists of the notes d, m, s, d'. Hundreds of tunes could be written using those four notes alone. Here are a few :—



Exercises

A. Easy.

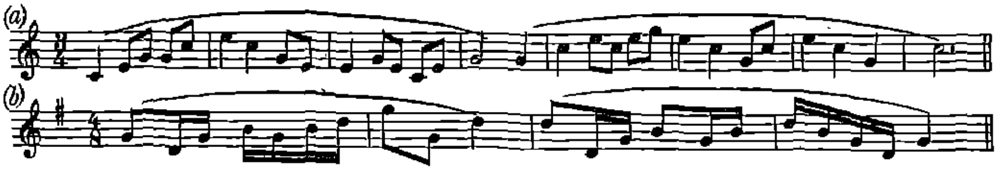
1. These tunes are *all* based on the *doh* chord. Think them through and then sing them to the tonic sol-fa names. Take a breath at the end of each slur (⌒) :—



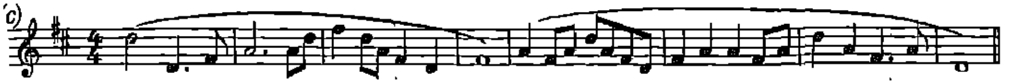
2. To the rhythms given in the exercises in Lesson VIII, question A1, add melodies, using only the notes d, m, s, d'. Key C major.
3. To the rhythms you wrote in the exercises of Lesson VIII, A4, add melodies, using only the notes d, m, s, d', m', s'. Key D.

B. More Difficult.

1. Think through the following tunes, all based on the *doh* chord. Then sing them to the tonic sol-fa names :—



c)

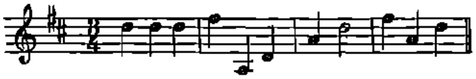


2. To the rhythms given in the exercises to Lesson VIII, question B1, add melodies, using only the notes d, m, s, d′, m′, s′. Choose your own key.
3. Write tunes of your own, each four bars in length, in key G major, using only the notes of the *doh* chord.

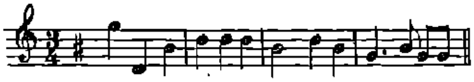
   N.B.—Be careful to follow the *rules of rhythm* given in Lesson VIII.
4. What are the faults in the following tune? Write your answer thus:—

   Bar 1.......................................

   Bar 2.......................................

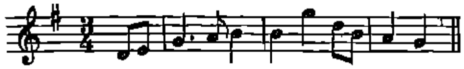


5. Point out *all* the faults in the following:—

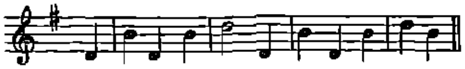


6. Why do you think these tunes are difficult to sing?

(*a*) *Leezie Lindsay.*



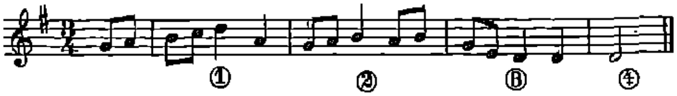
(*b*) *The Blacksmith.*



X. TUNE WRITING—3

Up to the present you have used only the notes of the *doh* chord (d, m, s, d′) in making tunes. All the tunes, therefore, have been made up of leaps and a few repeated notes.

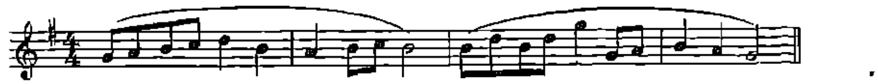
Examine this tune:—

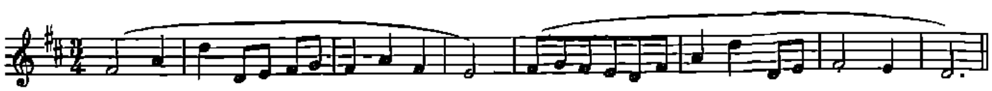


You will find that it is made up of:—

1. Leaps, in bars 1 and 3.
2. Repeated notes, in bar 3.
3. Scale passages, in bars 1 and 2.

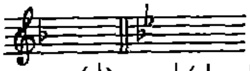
In order to have scale passages in your tunes, you must now be allowed to use other notes of the scale, ray, fah, and lah. The use of those extra notes will mean that you will be able to write more beautiful tunes, but special care will be needed in their use. Therefore, for the time being, any *leaps* you make, should occur *between the notes of the doh chord only.* For example, the following two tunes follow this rule with quite satisfactory results:—





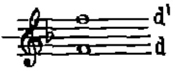
At this stage you should be ready to learn two new key signatures. As you know, a major scale is a diatonic scale whose semitones occur between the 3rd and 4th and the 7th and 8th notes. If you play on the pianoforte a scale from F—F using only the white notes, you do *not* obtain a major scale, because there is no semitone between the 3rd and 4th notes. To make this into a major scale B♭ must be used. (A flat (♭) lowers a note by one semitone.) This is now the scale of F MAJOR. The scale containing one flat (B♭) is the scale of F MAJOR. The scale containing two flats (B♭, E♭) is the scale of B♭ MAJOR.

KEY SIGNATURES :—

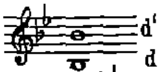


Key F (B♭) Key B♭ (B♭ & E♭)

Position of the key note or doh :—



Key F

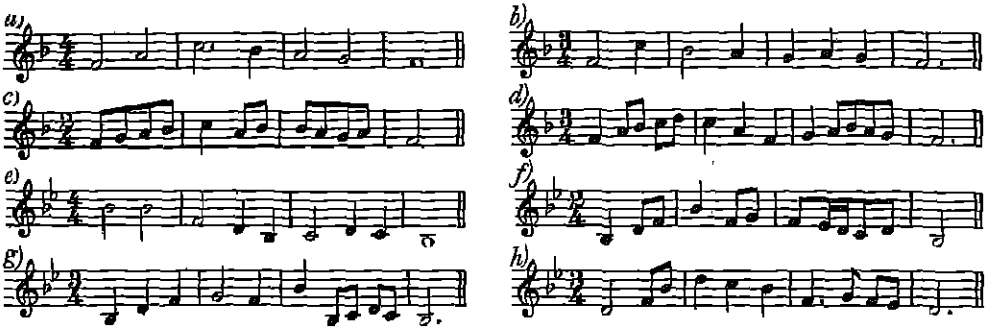


Key B♭

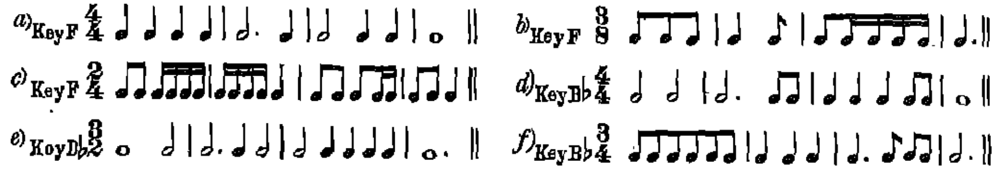
Exercises

A. Easy.

1. Sing these tunes at sight. First of all make certain you know the positions of the notes of the *doh* chord. Leaps will occur *only* between notes of the *doh* chord.



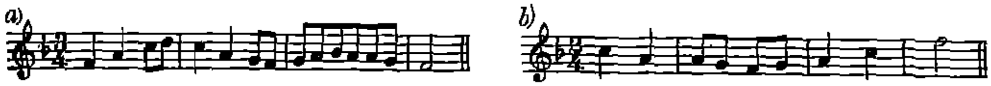
2. To the following rhythms, add melodies. Use all the notes of the major scale, *except te.* Leaps should be made *only* between notes of the *doh* chord. End on a note of the *doh* chord. Try to *hear* every note before you write it :—



3. Write a tune, entirely your own composition, 4 bars in length in $\frac{3}{4}$ time. (Follow carefully the rules given in Lesson VIII.)
4. Why is it necessary to have B♭ in the scale or key of F major ?

B. More Difficult.

1. Sing the following tunes at sight, using the tonic sol-fa names for the notes. Then repeat them to *lah.*



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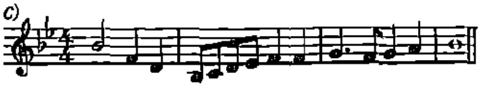

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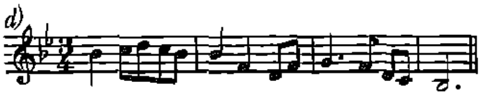

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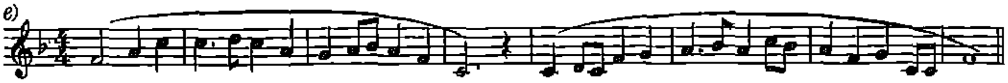
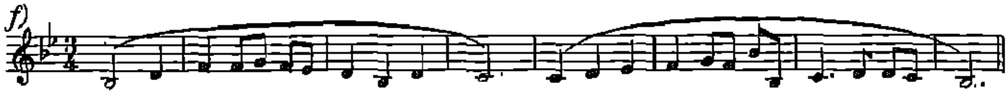
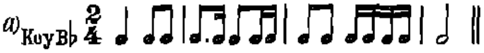


f)



2. To the following rhythms add melodies. Use all notes of the major scale *except te*. Leaps should be made *only* between notes of the *doh* chord. End on a note of the *doh* chord. Try to *hear* every note before you write it.

a)



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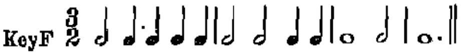

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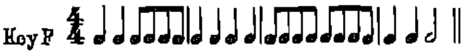

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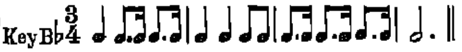
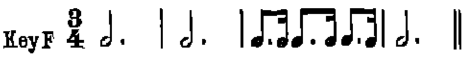


e)



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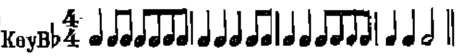
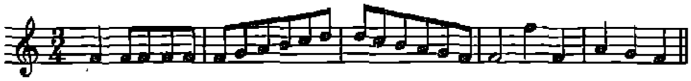


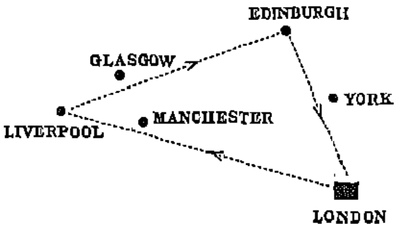
3. Point out all the faults in the following tune :—



4. Write the key signatures of the keys of G major, F major and B♭ major. Mark the positions of the notes of the *doh* chord on the stave in each case.

XI. THE NOTE "TE"

A scale is rather like a ride in a motor car, or a walk in the country. Let us go out in the car. (You can plan a walk in the country near where you live, on similar lines, but of course, of a much shorter distance.) We start from London and plan to go to Liverpool, Edinburgh and back to London. Instead of going on the direct road from London to Liverpool, we decide to visit Manchester. Instead of going direct to Edinburgh, we turn off to Glasgow. On our return from Edinburgh, we once again leave the direct road and turn off to visit York. We come back again to the main road, and when we are about ten miles from our journey's end, we find that almost any road we take will bring us to London.



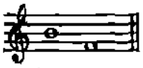
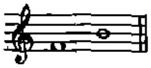
The chief notes of the scale are d, m, s, d'. The tunes you wrote using *only* those notes were rather like the journey on the direct road,—London, Liverpool, Edinburgh, London. You then wrote tunes using all the above notes plus r, f and l : they were like the journey in which we branched off to Manchester, Glasgow and York.

There is still the note te. That is rather like the part of the journey, when we were nearly home, and whichever road we took would bring us to London. The note te nearly always leads home to doh. In fact, it is called the leading note.

Here are some other names for the notes of the scale which you ought to know. Just to help you to remember them, they are compared with the towns visited on the motor tour :—

d = tonic or key note (London).
r = supertonic (Manchester).
m = mediant (Liverpool).
f = subdominant (Glasgow).
s = dominant (Edinburgh).
l = submediant (York).
t = leading note (nearly home).
d' = tonic or key note (London).

The note *te* is called the leading note, because when you play or sing up the scale and arrive at *te,* you feel you *must go on to doh.* Therefore, when you use *te* in the tunes you write, you have to be most careful what note follows it. Here are a few helpful rules about the use of *te* :—

1. *Te* should nearly always be followed by *doh.* In other words, the leading note should nearly always be followed by the tonic or key note.
2. *Te* need not go to the tonic when you come *down* the scale, *e.g.*, d', t, l, etc., is quite satisfactory.
3. Never go from *te down* to *fah* :  or from *fah up* to *te* : 

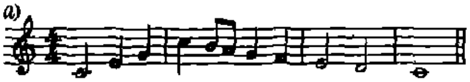
because those leaps are very difficult to sing.

Exercises

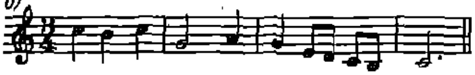
A. Easy.

1. Sing the following tunes at sight using the tonic sol-fa names for the notes. Then repeat them to *lah.* Leaps will occur *only* between notes of the *doh* chord.

a)



b)



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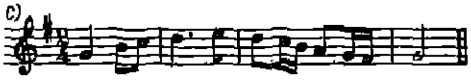

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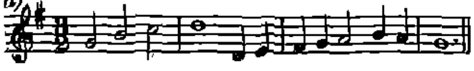
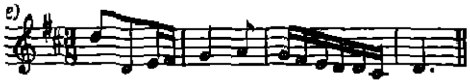
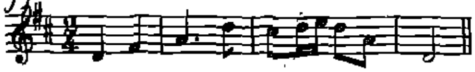


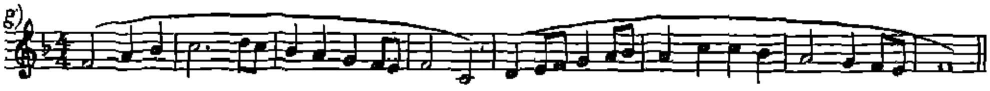
e)



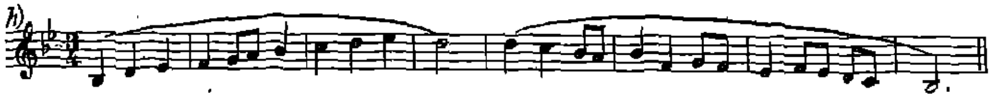
f)



g)

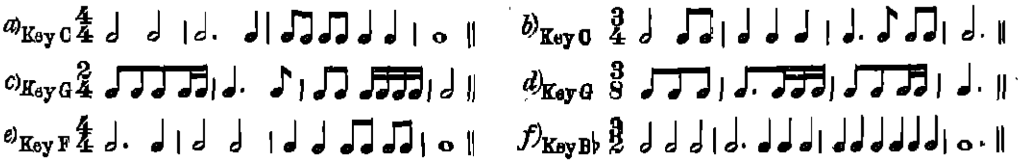


h)



2. Show, on a stave in your manuscript book, the positions of these notes :—
   - (*a*) Key G ; tonic, subdominant, leading note.
   - (*b*) Key D ; tonic, dominant, submediant.
   - (*c*) Key B♭ ; tonic, mediant, supertonic.

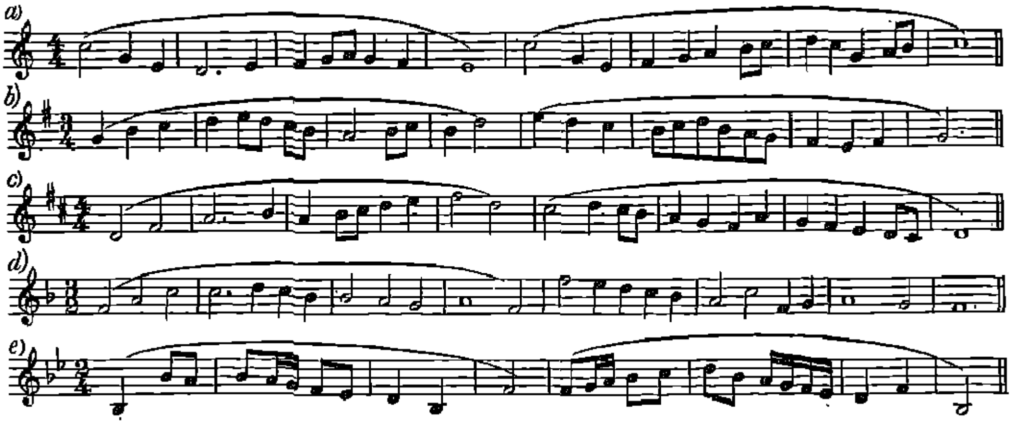
3. Why is the 7th note of the scale (te) called the "leading note"?
4. To the following rhythms, add melodies. Use *all* the notes of the scale, but be very careful how you treat *te*. Leaps should be made *only* between notes of the *doh* chord. End on a note of the *doh* chord. Try to hear every note you write :—



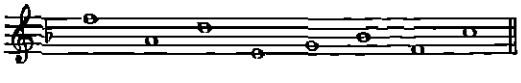
5. Write an original tune, 4 bars in length, Key G, 4/4 time. Use only minims and crotchets, and a semibreve as the last note.

B. More Difficult.

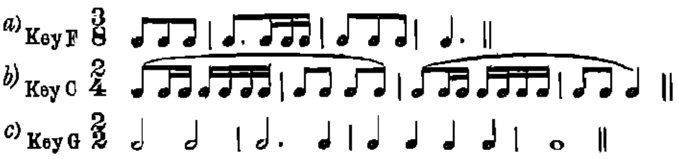
1. Sing the following tunes at sight, using the tonic sol-fa names for the notes. Then repeat them to *lah* :—

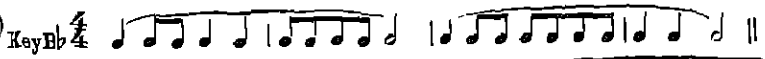


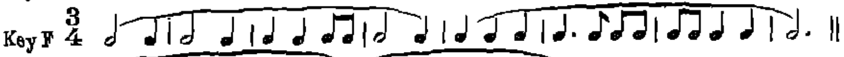
2. Write out the full names of all the notes of the major scale.
3. Give the full names to the following notes :—

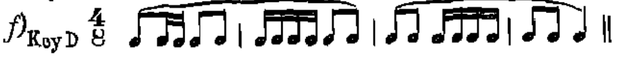


4. Show, on a stave, the positions of the following notes :—
   - (*a*) Key C; leading note, supertonic, dominant.
   - (*b*) Key G; mediant, submediant, subdominant.
   - (*c*) Key B♭; tonic, dominant, mediant.
5. To the following rhythms, add melodies. Use *all* the notes of the scale, but be careful how you treat *te*. Leaps should be made *only* between notes of the *doh* chord. End on a note of the *doh* chord :—



d) 

e) 

f) 

6. Write *two* original tunes, each 4 bars in length :—
   - (*a*) Key F. 3 beats in the bar.
   - (*b*) Key D. 4 beats in the bar.

Put in the key signature and the time signature ; use *no* note shorter than *half a beat* in length.

XII. REVISION

NOTES in music serve the same purpose as the letters of the alphabet in writing. They represent sounds. Just as letters are combined to form words and sentences, so notes are used to make music.

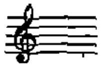
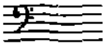
NOTES show *two* things :—

1. What sound the composer wishes you to sing or play. This is shown by its position on the stave.
2. How long the sound is to last. This is shown by its shape. The length of a note is measured by beats or pulses. Before you can decide the length of a note you must look at the TIME SIGNATURE.

THE TIME SIGNATURE shows *two* things :—

1. What kind of note is to be taken as *one beat*. This is shown by the lower number—1 for 𝅝, 2 for 𝅗𝅥, 4 for ♩, 8 for ♪.
2. How many of these beats are in each bar. This is shown by the top number.

THE PITCH of a note is shown by its position on the stave.

Before you know which note is written you must look at the CLEF. The chief clefs in use to-day are the TREBLE or G CLEF  showing G on the 2nd line, and the BASS or F CLEF  showing F on the 4th line.

RULES to remember when reading notes on the stave to their tonic sol-fa names :—

1. If *doh* is on the line, *doh'* is in a space and vice versa.
2. If *doh* is on a line, *me* and *soh* are on the lines just above : if *doh* is in a space, *me* and *soh* are in the spaces just above.

A SCALE is a series of notes in alphabetical order.

A CHROMATIC SCALE consists entirely of semitones.

A DIATONIC SCALE contains both tones and semitones.

A MAJOR SCALE is a diatonic scale whose semitones occur between the 3rd and 4th notes, and the 7th and 8th notes. Sharps or flats are necessary in every major scale *except* the scale of C major. These must be used to make the semitones occur in the right places.

The KEY or Scale of a piece of music is shown by the sharps or flats placed at the beginning.

HINTS ON TUNE WRITING :—

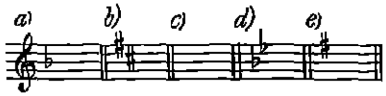
1. The longest note should *generally* be at the beginning of the bar.
2. The last note of a tune *generally* comes on the *first* beat of the last bar ; if there are 4 beats in the bar, the last note *may* come on the 3rd beat.

3. Good tunes rise and fall, like waves.
4. There should not be too many repeated notes.
5. There should not be too much movement in the same direction.
6. After a big leap, move in the *opposite* direction.
7. When using the note *te*, it is generally best to follow it by *doh*, except when coming *down* the scale. *Never* move from *te down to fah*, or *fah up to te*.
8. Tunes should end on a note of the *doh* chord.

A. Easy.

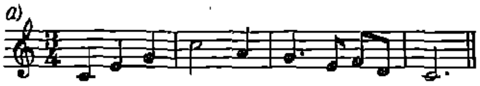
Exercises

1. How many semiquavers are there in the following? (*a*) a crotchet; (*b*) a semibreve; (*c*) a dotted minim.
2. What do the two numbers of a time signature show you?
3. What is the meaning of the following time signatures?:— $\frac{3}{2}$, $\frac{4}{8}$ and $\frac{2}{1}$.
4. What would be the time signatures for the following?:— (*a*) 2 crotchets in each bar; (*b*) 5 quavers in each bar; (*c*) 3 minims in each bar.
5. In what other way is $\frac{4}{4}$ time often shown?
6. Where do the semitones occur in a major scale?
7. Why is it necessary to use sharps and flats in most major scales?
8. What is the collection of sharps or flats at the beginning of a piece of music called?
9. Where is *doh* in the keys of: (*a*) C; (*b*) F; (*c*) B♭?
10. What keys are shown by the following?



11. Sing the following tunes at sight, using the tonic sol-fa names for the notes. Then repeat them to *lah*. Leaps may occur between *any* notes, and not only notes of the *doh* chord:—

a)



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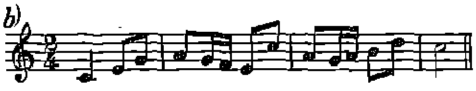

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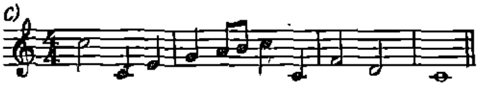

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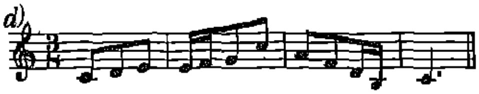
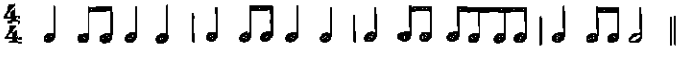
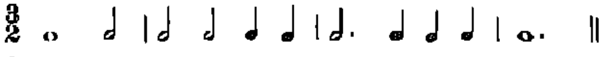


12. Add melodies to the following rhythms. Leaps may occur between *any suitable notes*:—

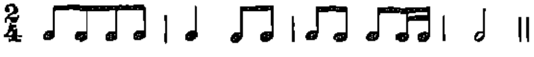
a) Key G



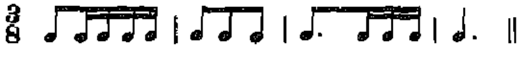
b) Key F



c) Key D



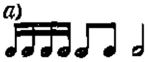
d) Key B♭



B. More Difficult.

1. Write *one* note equal in length to each of the following groups:—

a)



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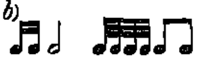

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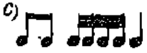
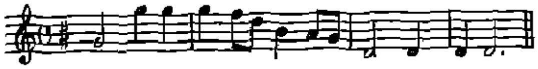
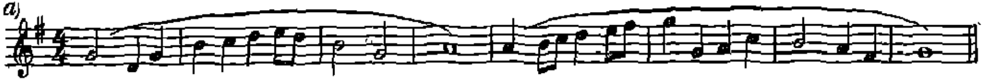


2. How would you show in a time signature that the note to be taken as one beat was: (*a*) a semibreve (*b*) a quaver, (*c*) a minim?
3. What is the meaning of $\frac{9}{16}$, ¢ and C?
4. What is a scale?
5. Point out any differences between a chromatic scale and a diatonic scale.
6. What is a major scale?
7. Write the key signatures of F major, G major, B♭ major and D major.
8. Point out *all* the faults in the following tune:



9. Sing the following tunes, using the tonic sol-fa names for the notes. Then repeat them to *lah*:—

a)



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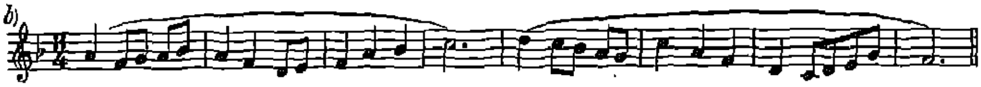
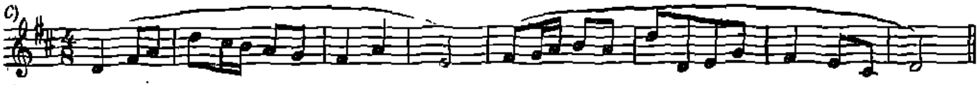


c)



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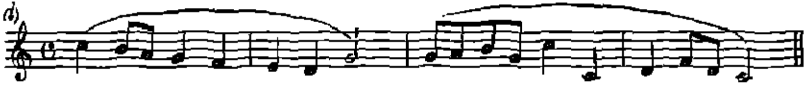
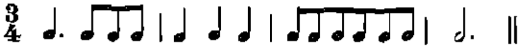
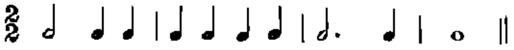


10. Add melodies to the following rhythms:—

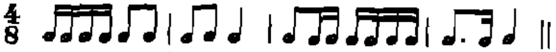
a) Key C



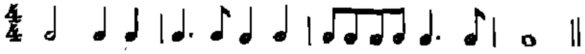
b) Key F



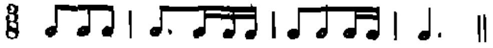
c) Key G



d) Key B♭



e) Key D

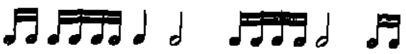


11. Write *two* original tunes, each 4 bars in length. Select your own key and time.

ADDITIONAL EXERCISES

I. Notes

1. Give a complete list of notes in common use in music.
2. Add together the following notes and write the note that is equal in value:—

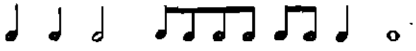


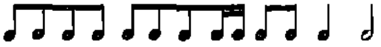
3. What note is $\frac{1}{32}$ of a semibreve?
4. What note is $\frac{1}{8}$ of a minim?
5. What note is $\frac{1}{4}$ of a semibreve?

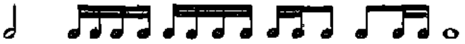
6. How many quavers are equal to three minims ?
7. How many semiquavers are equal to four crotchets ?
8. How many minims are equal to four breves ?

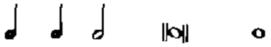
II. Time

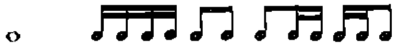
1. Sing these exercises to *lah*, or tap them, making *one beat* on each *crotchet* :—

a) 

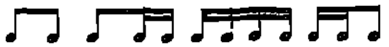
b) 

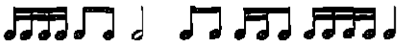
c) 

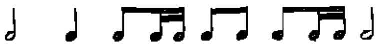
d) 

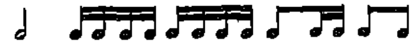
e) 

2. Sing these exercises to *lah*, or tap them, making *one beat* on each quaver :—

a) 

b) 

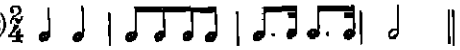
c) 

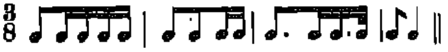
d) 

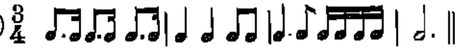
3. There is one beat on a crotchet. Write down the notes that are 2 beats, $\frac{1}{4}$ beat, $\frac{1}{2}$ beat, 4 beats. Name each note.
4. If a semiquaver were $\frac{1}{2}$ beat, how long would there be on a crotchet, a semibreve, a quaver, a breve, a minim ?

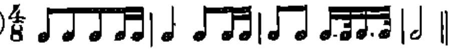
III. Time Signature—1

1. Sing these exercises to *lah*, or tap them :—

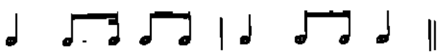
a) 

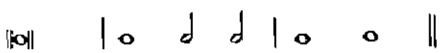
b) 

c) 

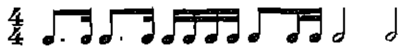
d) 

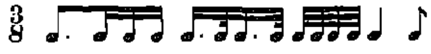
2. Is this a possible time signature $\frac{4}{3}$? Give reasons for your answer.
3. Add time signatures to the following :—

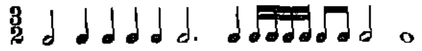
a) 

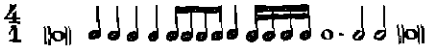
b) 

4. Add bar lines to the following :—

a) 

b) 

c) 

d) 

5. What exactly does the time signature tell you about the music ?

IV. Time Signature—2

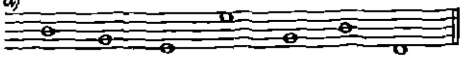
1. Give the meaning of andante, largo, presto 𝅗𝅥 = 72 and ♪ = 152.
2. Draw a neat sketch of a metronome.
3. Which do you think is the better way of showing the speed of music, by words or metronome marks ? Why ?

4. What is the meaning of $\frac{4}{4}$? What is this time sometimes called? In what other way may it be written?
5. In what other way may $\frac{2}{2}$ be written?

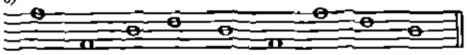
V. Pitch

1. Sing the following exercises, using the tonic sol-fa names for the notes. The first note in each case is *soh* and all the notes belong to the *doh* chord.

a)



b)



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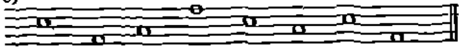

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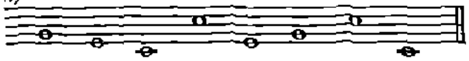
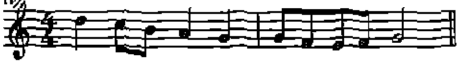


2. On a bass stave write the following notes: A, D, F, B, C, E.
3. Name the notes which come on the lines of the treble stave.
4. Name the notes which come in the spaces of the treble stave.
5. Suppose *doh* is in the first space of the treble stave: write *me, la, ray, soh, doh'*.
6. Suppose *me* is on the second line of the treble stave: write *doh, soh, te, fah, ray, doh'*.

VI. Scale

1. Sing the following exercises to *lah*. Each exercise begins on *soh*:—

a)



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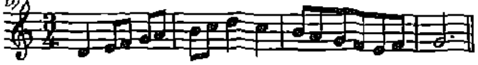
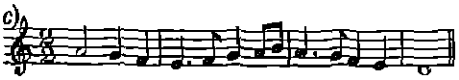
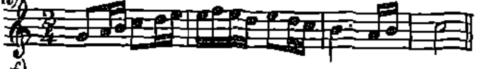


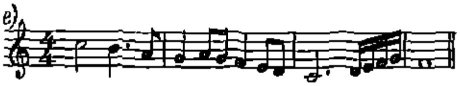
c)



d)



e)



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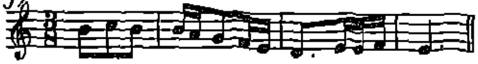
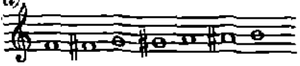
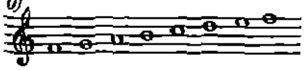


2. What is a semitone?
3. What is wrong with this definition of a major scale: "A major scale is a scale whose semitones occur between the 3rd and 4th notes, and the 7th and 8th notes"?
4. Name the following scales (major, diatonic, or chromatic):—

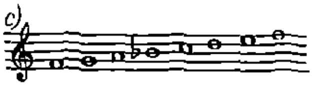
a)



b)



c)



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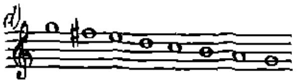

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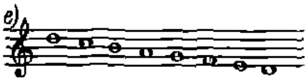

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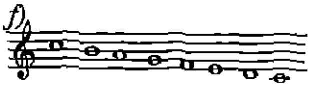
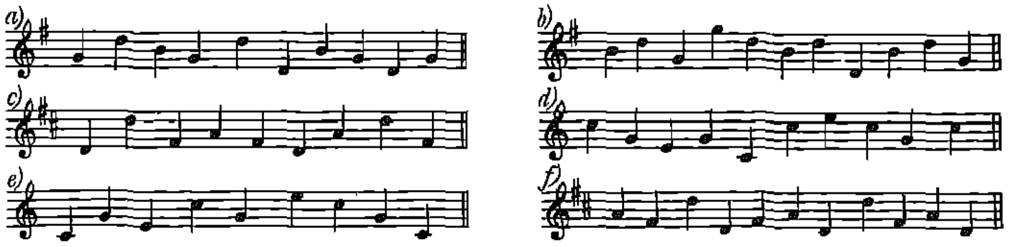


VI. Key

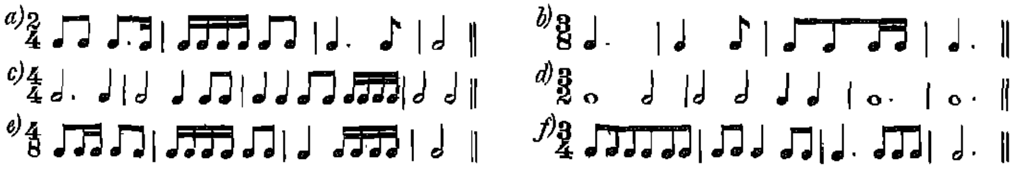
1. Write the scale of C major, in crotchets. Begin on the highest note. Mark the semitones with slurs.
2. Write the scale of D major in quavers. Begin on the lowest note. Mark the semitones with slurs.

3. Write the scale of G major, ascending and descending, in minims. Mark the semitones.
4. Sing the following exercises to *lah* :—

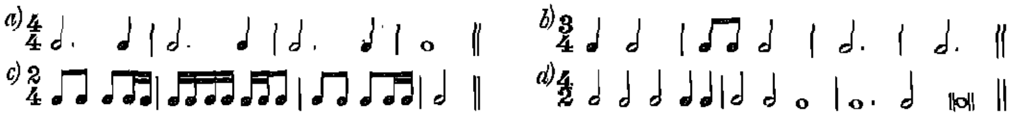


VIII. Tune Writing—1—Rhythm

1. Tap or sing the following rhythms :—



2. Give your opinions about the following rhythms :—



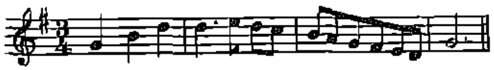
3. What are the two important things necessary to make a good tune?
4. Write down two good hints to be remembered in writing a rhythm.

IX. Tune Writing—2—Melody

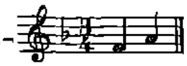
1. Write down what you consider the most important points to remember in writing a tune.
2. Write down from memory, the first few bars of *God Save the King*. Key G, $\frac{3}{4}$ time.
3. *Write down, from memory, the first few bars of any song you have learnt in class.* Choose your own key.

X. Tune Writing—3

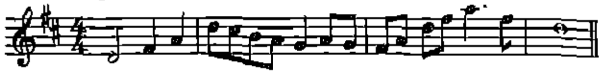
1. The following tune is in the key of G. Transpose it (i.e., re-write it in a new key) into the key of F, adding the new key signature.



Begin thus:–



2. Transpose this tune (*a*) *up* into key G.
(*b*) *down* into key B♭.
Add the new key signatures.



3. Write a tune, four bars in length, in the key of B♭, $\frac{3}{4}$ time. Transpose it into key D, and then into key C.
4. Write a tune, four bars in length, in the key of F, $\frac{3}{8}$ time. Transpose it into key D, and then into key B♭.

XI. The Note "TE"

1. Write down three important rules to guide you in the correct use of the note *te*.
2. Write down the names of the following notes of the major scale: 5th, 3rd, 1st, 6th, 4th, 7th.
3. Show, on a stave, the positions of the notes mentioned in Question 2, in the key of F major.
4. Write three original tunes, each four bars in length.
   (*a*) Key G. 2 beats in each bar.
   (*b*) Key F. 4 beats in each bar.
   (*c*) Key D. 3 beats in each bar.
5. Transpose the tunes you have written in Question 4, as follows:—
   (*a*) into Key D. (*b*) into Key G. (*c*) into Key B♭.

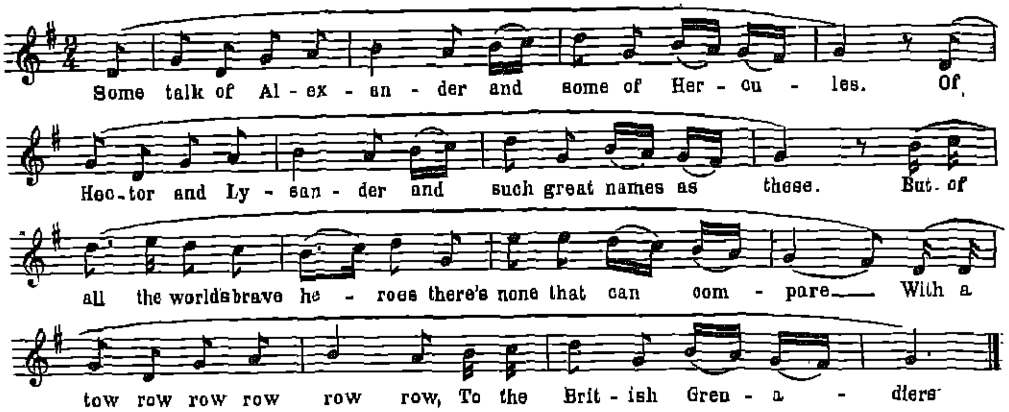
XII. Revision

1. A composer wishes to denote what note is to be played or sung, and for what period it is to sound. How does he do this?
2. How do we measure time in music?
3. How does a composer show his wishes about (*a*) the time of the music, (*b*) the speed of the music?
4. Explain the following terms: G clef, scale, semitone, allegro, demisemiquaver, metronome, *doh* chord, pitch.
5. What do you understand by: chromatic scale, major scale, tonic, leading note, dominant, andante, ♩=72?
6. Imagine you going to show a pupil how to write tunes. What hints would you give about (*a*) the rhythm, and (*b*) the melody?
7. Why are so many Italian words used as terms in music?
8. What is the effect of (*a*) a sharp, (*b*) a flat? Why are they used in most major scales?
9. Which major scale requires no flats or sharps? Write it out, mark the semitones.
10. What is meant by C, 𝄢, 𝄵, $\frac{2}{4}$, $\frac{9}{8}$, common time?

SECOND YEAR'S COURSE
OF
MUSIC

I. FOUR-BAR PHRASES

The British Grenadiers.


Some talk of Al - ex - an - der and some of Her - cu - les. Of
Hec - tor and Ly - san - der and such great names as these. But of
all the world's brave he - roes there's none that can com - pare—— With a
tow row row row row row, To the Brit - ish Gren - a - diers

Notes

This tune, like all tunes, is divided into bars. When a composer writes a tune, he does not compose bar by bar. He does very much what you do when you write an essay ; he thinks, first, of all the phrases and sentences. The PHRASES of a tune consist of several bars ; they make a statement, just as you make a statement when you write a phrase or sentence in your essay. The phrases in *The British Grenadiers* have been marked with a slur (⌒).

The phrase of a tune will contain *strong* notes and *weak* notes ; when the composer writes down his phrase he puts a bar line *before* the *strong* notes.

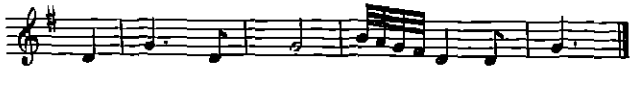
The British Grenadiers consists of four phrases ; let us examine the tune as a whole, and find out one or two important points about those phrases.

You will often have seen an aeroplane. Men have had to study and experiment for many, many years to make the successful aeroplane we know to-day. Much skill and care are needed. It would be no use taking any sort of engine, fitting it into any sort of body and adding some wings ; that would be a poor patchwork machine, and even if it rose from the ground at all, it would certainly crash before long. All the different parts have to be carefully constructed according to strict rules, then fitted together in the proper manner. If that is done, the aeroplane will fly in a balanced and controlled manner for long distances.

So in tune writing. You will *not* get a good tune by taking a number of odd phrases, and merely stringing them together. The phrases must be very carefully built up, just as you have done in earlier lessons, and properly joined.

Notice these points about the phrases in *The British Grenadiers* :—

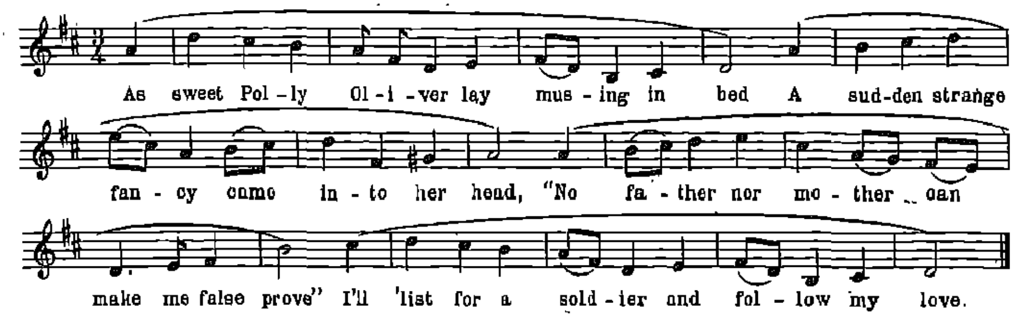
1. All the phrases are equal in length—4 bars each. If the phrases of a tune were all of different lengths, the result would not be satisfactory—it would be rather like the patchwork aeroplane.
2. All the phrases are in the same style, i.e., they all move in the same sort of way, and are made up of the same kinds of notes. You would not have a satisfactory tune if the first phrase remained as it is, and the second went something like this :—



When *you* write tunes, you must follow these two rules very carefully :—
1. Phrases to be of equal length.
2. Phrases to be in the same style.

Here is another tune made up of *four* phrases, each four bars in length, all in the same style.

Pretty Polly Oliver.


As sweet Pol - ly Ol - i - ver lay mus - ing in bed A sud-den strange
fan - cy came in - to her head, "No fa - ther nor mo - ther can
make me false prove" I'll 'list for a sold - ier and fol - low my love.

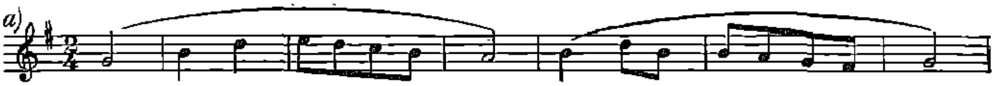
The following tunes also consist of four 4-bar phrases: *Drink To Me Only, The Keel Row, All Through the Night, The Minstrel Boy.*

Exercises

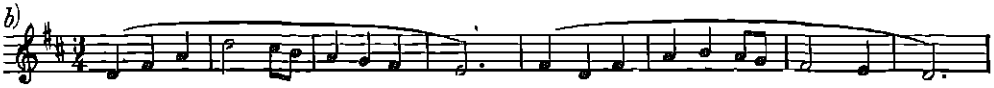
A. Easy.

1. Sing the following tunes at sight. Take a breath at the end of each phrase :—

a)

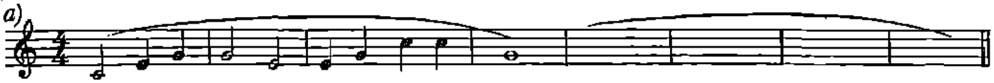


b)

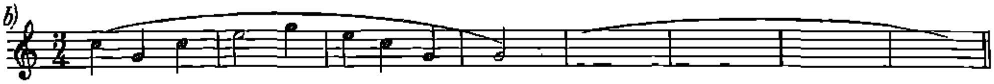


2. Complete each of the following exercises by adding a 4-bar phrase. Use only the notes of the *doh* chord, and mark the phrases with slurs(⌒). Try to HEAR everything you write :—

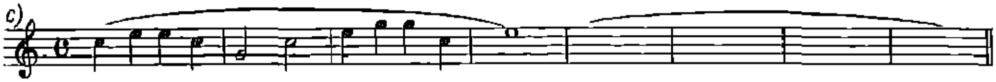
a)



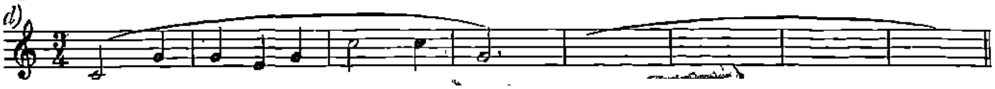
b)



c)



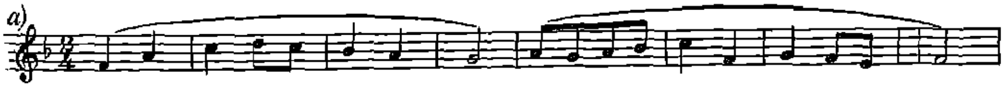
d)



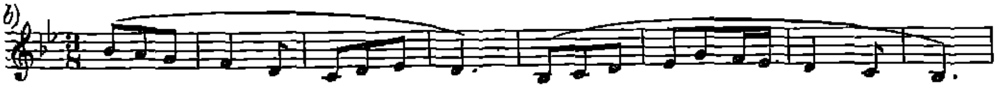
B. More Difficult.

1. Sing the following tunes at sight. Take a breath at the end of each phrase :—

a)

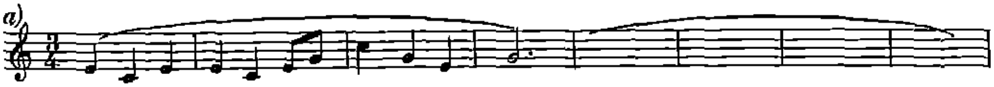


b)

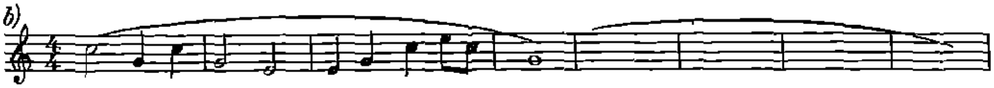


2. Complete each of the following phrases by adding a 4-bar phrase. Use only the notes *of the doh* chord. A few quavers may be used. Mark the phrases with slurs. Try to HEAR everything you write :—

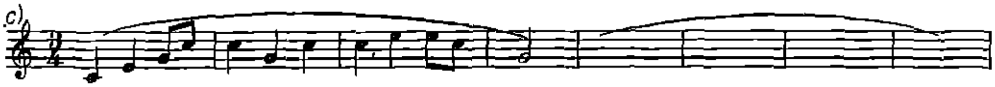
a)



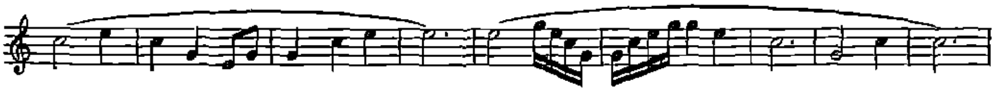
b)



c)

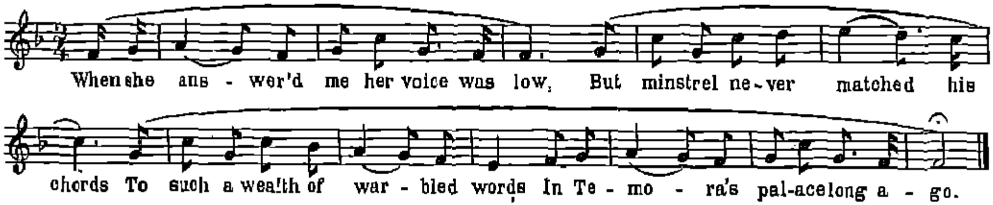


3. Write a tune consisting of two 4-bar phrases, key C, $\frac{3}{4}$ time. See that you have a *long note* at the end of each phrase. Mark the phrases with slurs. Use any notes of the scale you wish.
4. Point out any faults in the following :—



II. THREE-BAR PHRASES

When She Answered Me Her Voice Was Low.


When she ans - wer'd me her voice was low, But minstrel ne - ver matched his
chords To such a wealth of war - bled words In Te - mo - ra's pal-ace long a - go.

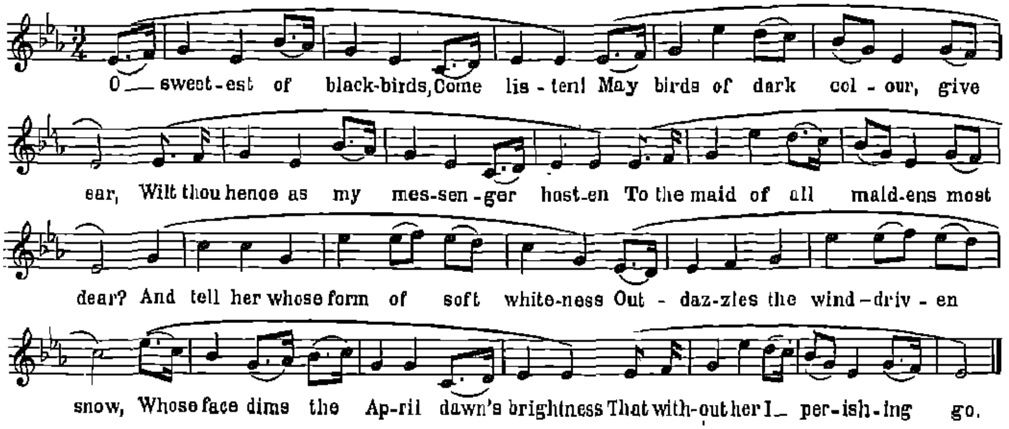
Notes

In Lesson I you learnt that a tune is made up of a number of phrases. A mere patchwork of phrases will not make a good tune ; care must be used to see that the phrases are of the same length and in the same style.

The phrases of *When She Answered Me* follow out this rule, but in a slightly different way. How uninteresting music would become if *all* tunes were constructed in exactly the same way. If you look at the trees in a forest you will find that no two of them are exactly alike. Even two oak trees will differ; but these little differences will not prevent their being oak trees. Or again, the aeroplane: there are different kinds of aeroplane—monoplane, biplane, seaplane. They are all aircraft, but there are some differences in design which make them suitable for special purposes—some light solo 'planes, some long distance 'planes, and some air liners. It is *exactly* the same with tunes. They are all made up of phrases, but there are differences in pattern and design.

Now examine the tune *When She Answered Me.* You will find that there are two 3-bar phrases and one 6-bar phrase. Perhaps you think that this tune is not following the rule about *equal phrases.* Strictly speaking it is not; but composers have found, by long experience, that *two short phrases* followed by *one double the length* is a very satisfactory design for a tune. This is frequently the case when the short phrases are less than 4 bars in length.

The Blackbird.


O — sweet-est of black-birds, Come lis - ten! May birds of dark col - our, give
ear, Wilt thou hence as my mes-sen - ger hast-en To the maid of all maid-ens most
dear? And tell her whose form of soft white-ness Out - daz-zles the wind - driv - en
snow, Whose face dims the Ap-ril dawn's brightness That with-out her I — per-ish-ing go.

This tune is longer than those you have previously studied. However, you will see that it follows the general rules of design already given :—

1. Phrases of equal length.
2. Phrases in the same style.

Sometimes tunes are built of phrases of different lengths (the very phrases in one particular tune sometimes vary in length); but the 4-bar phrase and the 3-bar phrase are by far the most common.

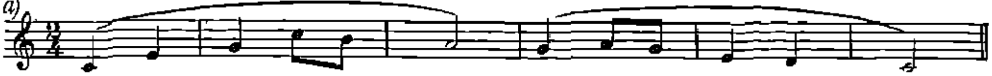
Examine all the tunes you can, and discover the interesting points about their phrases.

Exercises

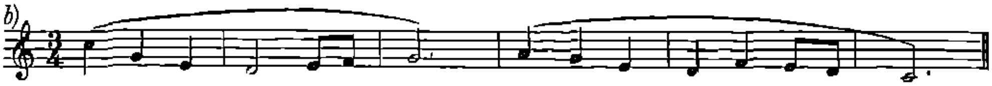
A. Easy.

1. Sing the following tunes at sight. Take a breath at the end of each phrase :—

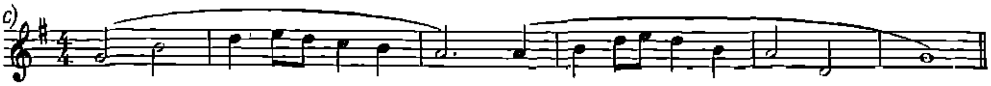
a)



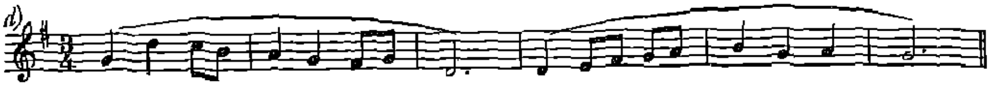
b)



c)

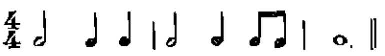


d)

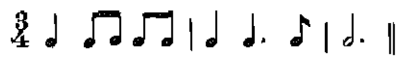


2. Add melodies to these rhythms to make 3-bar phrases :—

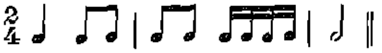
a) Key G



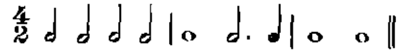
b) Key C



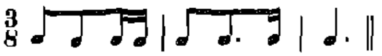
c) Key F



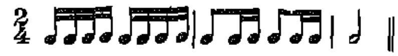
d) Key D



e) Key B♭

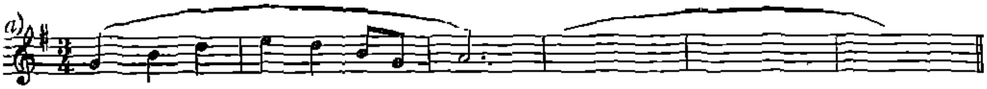


f) Key C

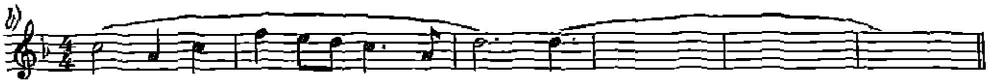


3. Complete each of the following phrases by adding a 3-bar phrase. Mark the phrases with slurs. Try to HEAR everything you write :—

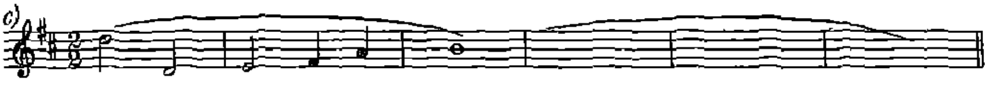
a)



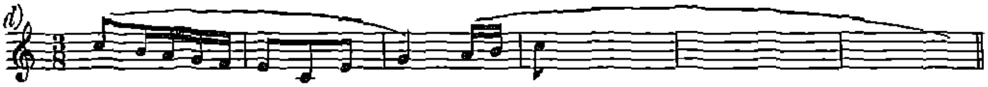
b)



c)



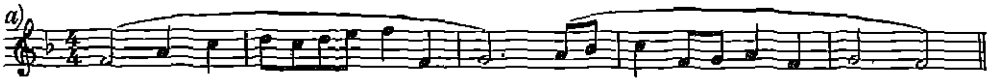
d)



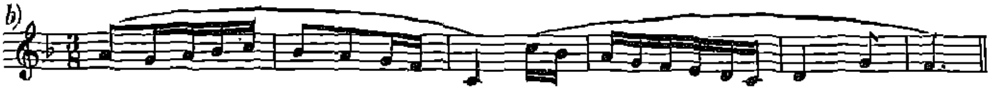
B. More Difficult.

1. Sing the following tunes at sight. Take a breath at the end of each phrase :—

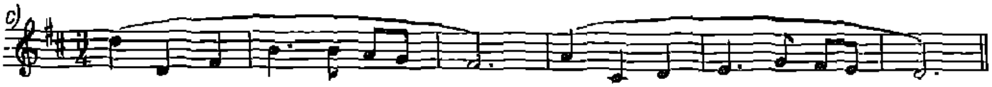
a)



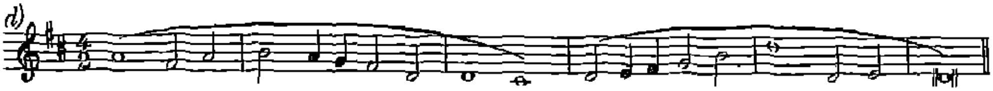
b)



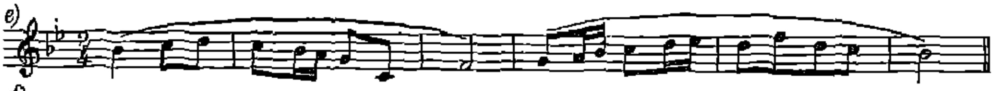
c)



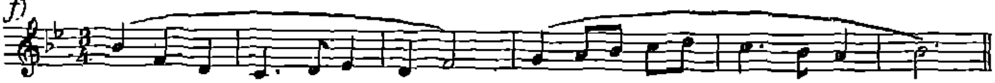
d)



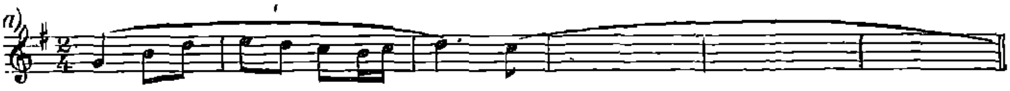
e)

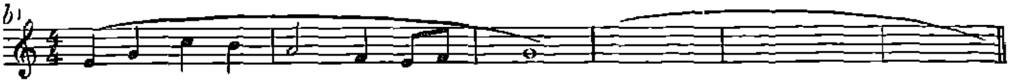


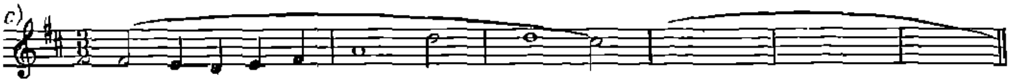
f)

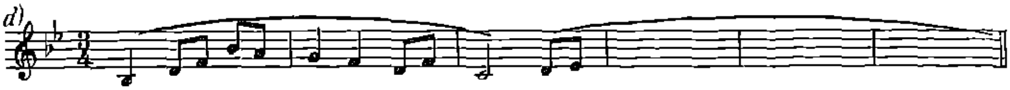


2. Complete each of the following phrases by adding a 3-bar phrase. Mark the phrases with slurs. Try to HEAR everything you write :—

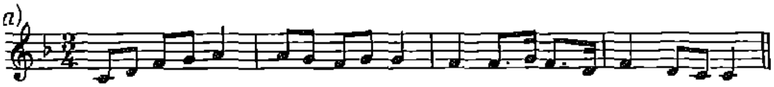
a)


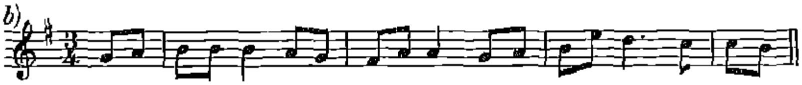
b)


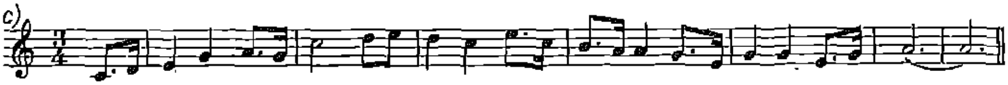
c)


d)


3. (*a*) Write a tune consisting of two 3-bar phrases.
   (*b*) Write a tune consisting of two 4-bar phrases.
   In each case choose your own key and time signature. There should be a long note at the end of each phrase.
4. Mark the phrases in these tunes :—

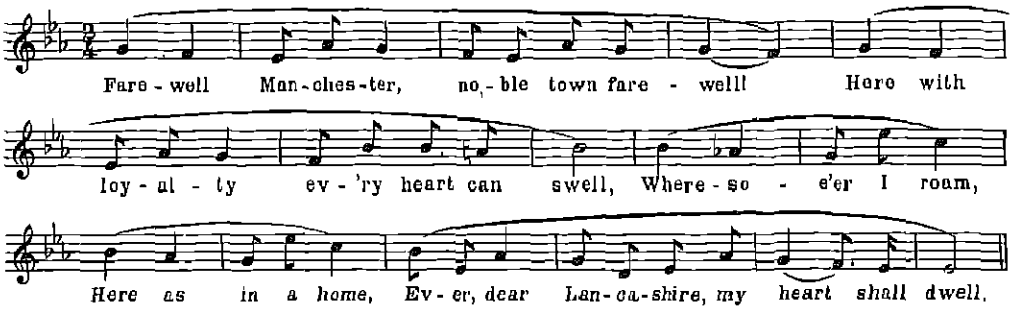
a)


b)


c)


III. MODULATION TO THE DOMINANT KEY

Farewell, Manchester.


Fare - well Man - ches - ter, no - ble town fare - well! Here with
loy - al - ty ev - 'ry heart can swell, Where - so - e'er I roam,
Here as in a home, Ev - er, dear Lan - ca - shire, my heart shall dwell.

Notes

This tune about Bonnie Prince Charlie is built up of four 4-bar phrases : the third phrase can be further divided into two shorter phrases of 2 bars each, as shown.

The end of a phrase is called a CADENCE. The word cadence means " a falling ". When you talk, you allow your voice to fall at the end of a phrase or sentence; that, too, is a cadence.

Say the following sentence, observing the punctuation : " As far as I can remember, I have never before heard of a cadence : therefore, I must try hard to understand what it means."

In that sentence there are several phrases, marked by the punctuation. You dropped your voice at the commas, the colon and the full stop—that is, you made cadences. Of course, the strongest cadence was at the full stop ; the colon marks a moderately strong cadence, and the commas only very weak and light ones.

Now compare the sentence with the tune *Farewell, Manchester.*

At the end of each phrase of the tune there is a cadence. The first phrase ends with a cadence like a comma. The second phrase ends with a cadence like a colon. The two short phrases each end with a cadence like a comma. The fourth phrase ends with a cadence like a full stop. Therefore, the second and fourth phrases have the strongest cadences ; halfway through the tune there is a moderately strong cadence, and at the end, a very strong one.

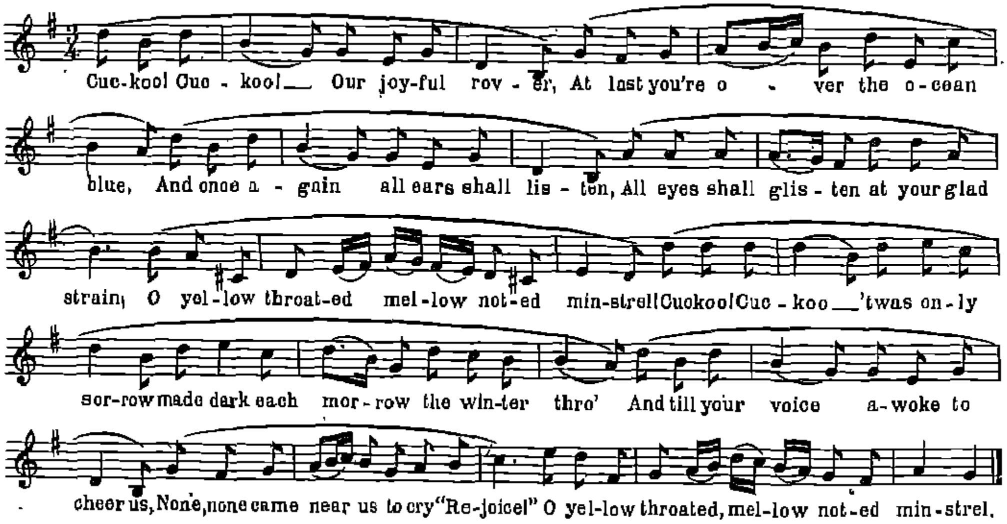
Consider the cadence at the end of the second phrase. The tonic sol-fa names of the last five notes are *ray, soh, soh, FE, soh.* Notice the *FE.* That has caused the music to change key. If a phrase ends with *fe, soh,* it nearly always changes key from tonic to dominant. That is to say, for a moment, the principal note of the music is no longer *doh* but *soh.*

The word generally used to mean " change of key " is MODULATION.

So, the tune *Farewell, Manchester,* modulates to the dominant key at the end of the second phrase. Then in the next bar we have the note *fah* again, and that brings the music back to the tonic key.

Here is another tune in which there is a modulation to the dominant key :—

The Cuckoo Madrigal.


Cuc-koo! Cuc - koo! Our joy-ful rov - er, At last you're o - ver the o-cean
blue, And once a - gain all ears shall lis - ten, All eyes shall glis - ten at your glad
strain, O yel-low throat-ed mel-low not-ed min-strel! Cuckoo! Cuc - koo 'twas on-ly
sor-row made dark each mor-row the win-ter thro' And till your voice a-woke to
cheer us, None, none came near us to cry "Re-joice!" O yel-low throated, mel-low not-ed min-strel.

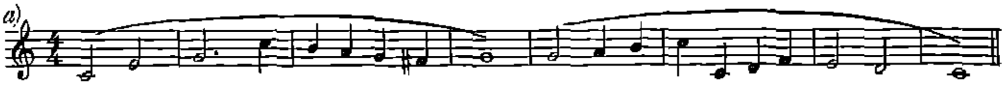
The following tunes also contain a modulation to the dominant key : *Pretty Polly Oliver, Where the Bee Sucks* (*Arne*), *Now Is The Month of Maying,* and *The Lass of Richmond Hill.*

Exercises

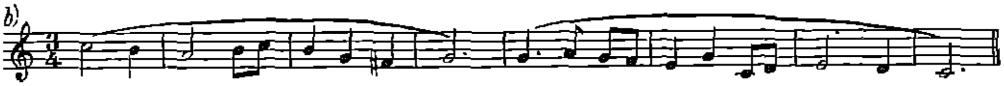
A. Easy.

1. Sing the following tunes at sight. Each one modulates to the dominant key by the use of the note *fe* :—

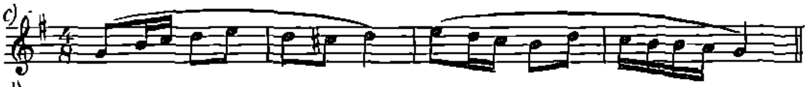
a)



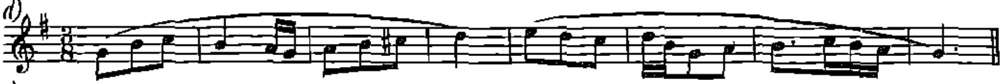
b)



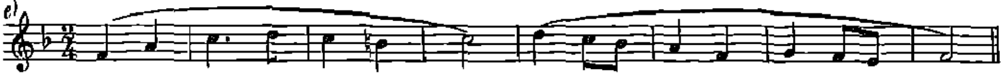
c)



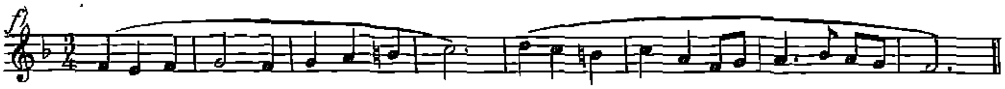
d)



e)

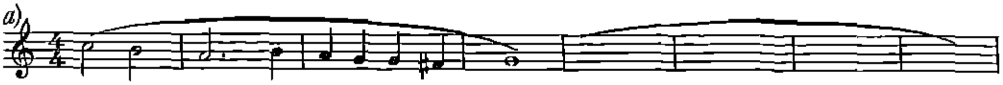


f)

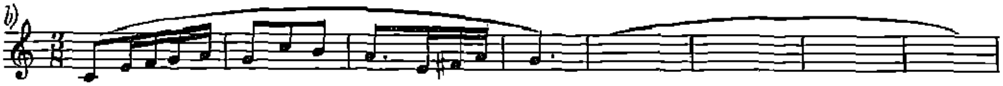


2. Each of the following phrases modulates to the dominant key. Name the new key in each case. Add a phrase of equal length, making it end in the tonic key :—

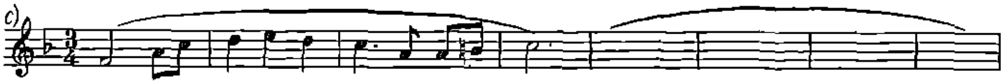
a)



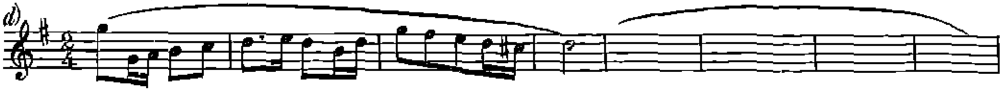
b)



c)



d)

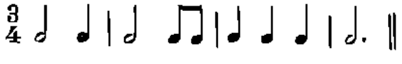


3. On these rhythms write tunes which modulate to the dominant. Make each one end with the notes *fe, soh*. Rules for writing the note *fe* :—

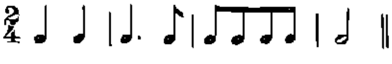
   1. If *fah* is a flat (♭) note, add a natural—it will then become a semitone higher, i.e., *fe*.

   2. In every other case add a sharp before *fah* :—

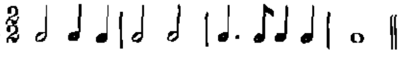
a) Key C



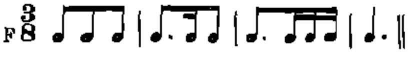
b) Key C



c) Key G



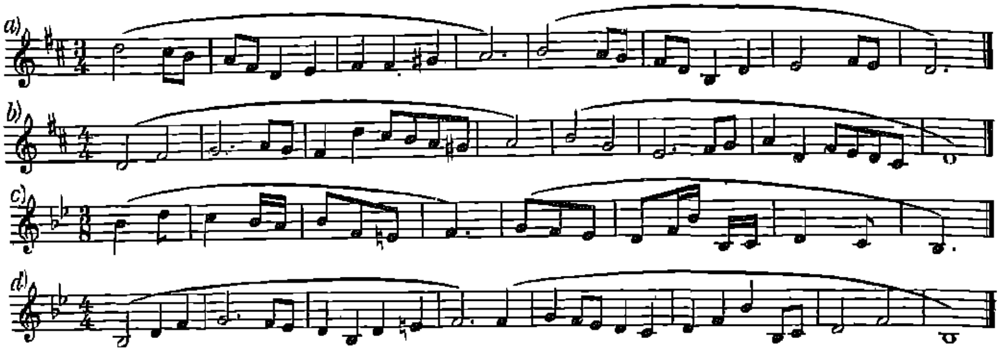
d) Key F



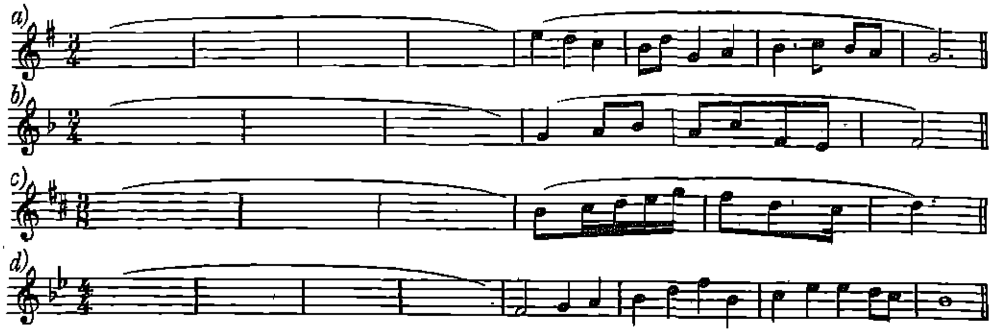
4. What is the meaning of the word cadence?

B. More Difficult.

1. Sing the following tunes at sight:—



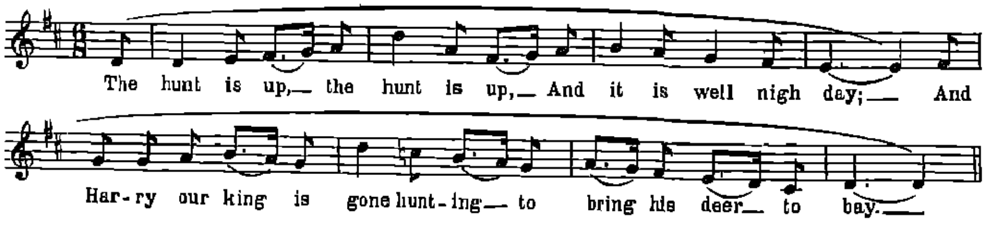
2. Before each of the following phrases, add a phrase, equal in length, which modulates to the dominant key. Name the new key in each case. Each phrase should end with a long note:—



3. Write an 8-bar tune in $\frac{3}{4}$ time, in the key of C major. It should consist of two 4-bar phrases, the first modulating to the dominant key, and the second ending in the tonic key. Mark the phrases, and see that each phrase ends with a long note.
4. Write an 8-bar tune, which modulates to the dominant key at the end of the first phrase. Choose your own key and time signatures.

IV. MODULATION TO THE SUBDOMINANT KEY

The Hunt Is Up.


The hunt is up,— the hunt is up,— And it is well nigh day;— And
Har-ry our king is gone hunt-ing— to bring his deer— to bay.—

Notes

This tune consists of two 4-bar phrases. At the cadence at the end of the first phrase, there is *no* modulation ; the music still remains in the tonic key.

Examine the notes of the second bar of the second phrase. The tonic sol-fa names of the notes are, *d'*, *TA*, *lah*, *soh*, *fah*. The use of *TA* causes a modulation to the subdominant key. For the moment, then, the principal note of the music is *fah*. In order to bring the music back to the tonic key, *te* is used just before the end.

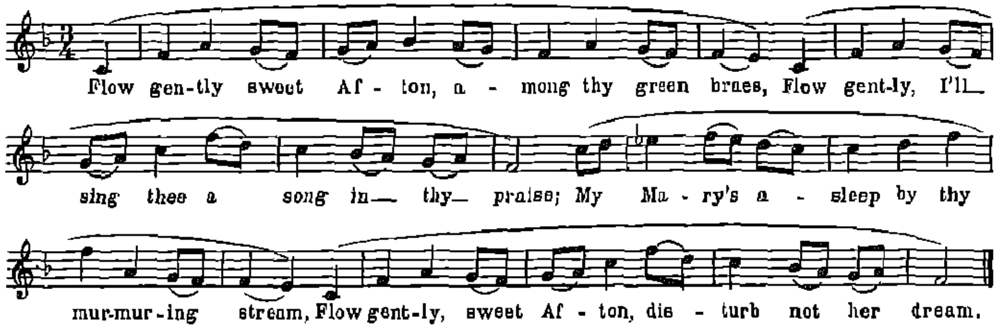
Here are two very important things to remember about the modulations you have had so far :—

1. The modulation to the dominant key is usually in the *first* half of the tune.
2. The modulation to the subdominant key is generally in the *second* half of the tune.

There are many exceptions to these rules. Skilful composers have found the way to write pleasing effects even when they do not obey these rules. It is important when you are learning, though, to follow the rules carefully ; when you have more skill you will be able to experiment.

Here is another tune which contains a modulation to the subdominant key, by the use of *ta* :—

Afton Water.

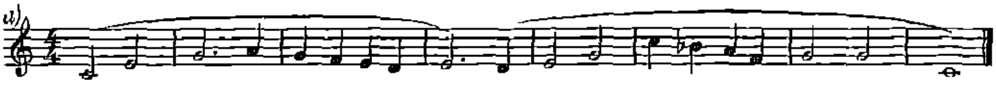

Flow gen-tly sweet Af - ton, a - mong thy green braes, Flow gent-ly, I'll
sing thee a song in thy praise; My Ma - ry's a - sleep by thy
mur-mur-ing stream, Flow gent-ly, sweet Af - ton, dis - turb not her dream.

Exercises

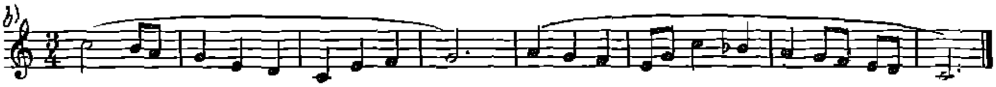
A. Easy.

1. Sing the following tunes at sight. Each one modulates to the subdominant key by the use of the note *ta* :—

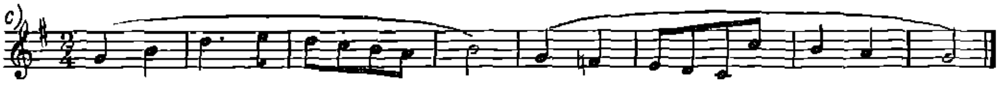
a)



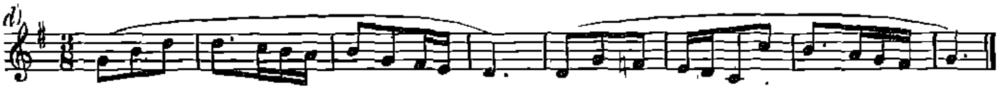
b)



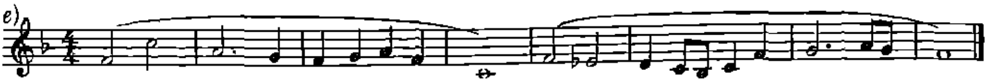
c)



d)



e)



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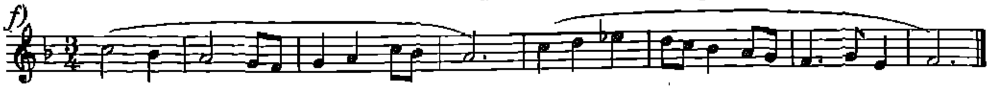
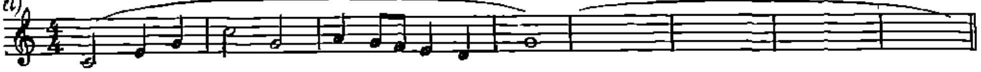


2. To each of the following phrases, add a phrase, equal in length, containing a modulation to the subdominant key. (Use the notes *ta, lah,* to make this change of key.) The modulation should occur about halfway through your phrase, to allow you time to return to the tonic key.

Rules for writing the note *ta* :—

1. If *te* is a sharp (♯) note, add a natural—it will then become a semitone lower, i.e., *ta*.
2. In every other case add a flat before *te*.

a)



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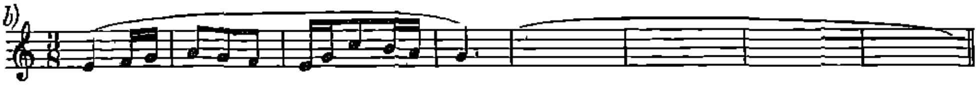

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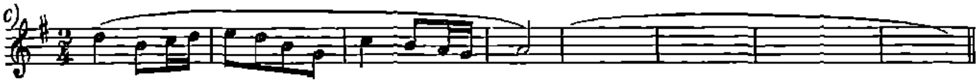

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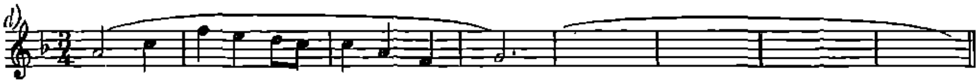
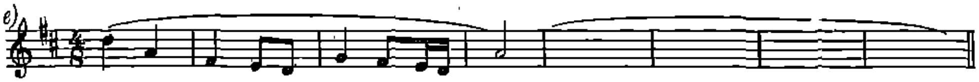


e)



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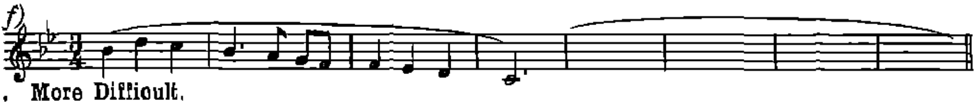
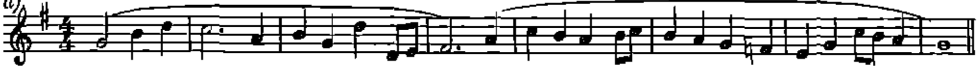


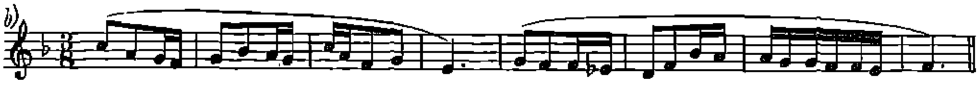
B. More Difficult.

1. Sing the following tunes at sight :—

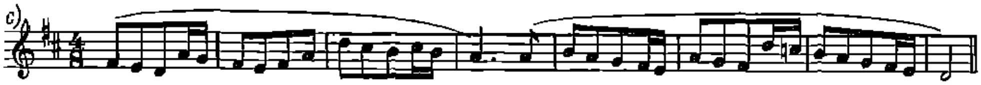
a)



b)



c)



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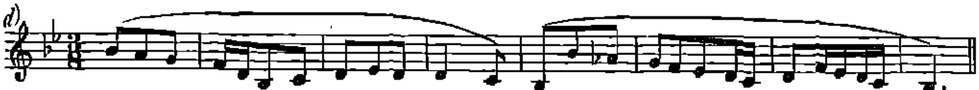

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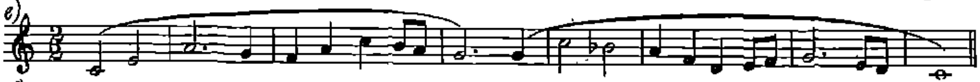

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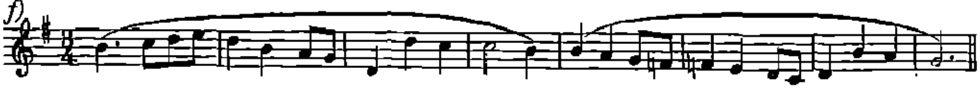
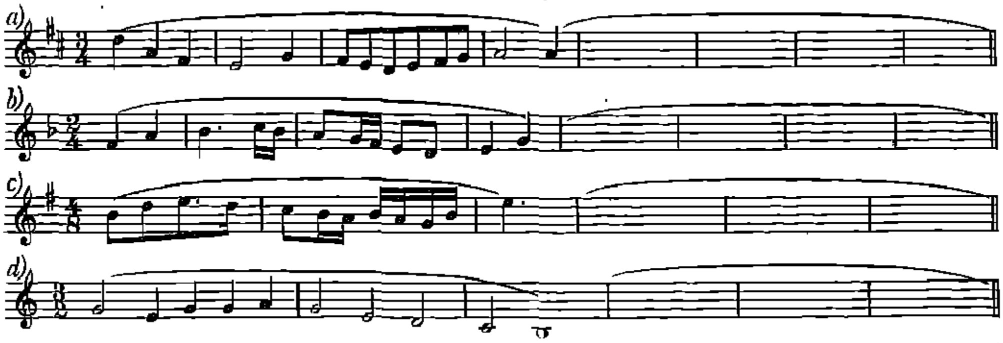
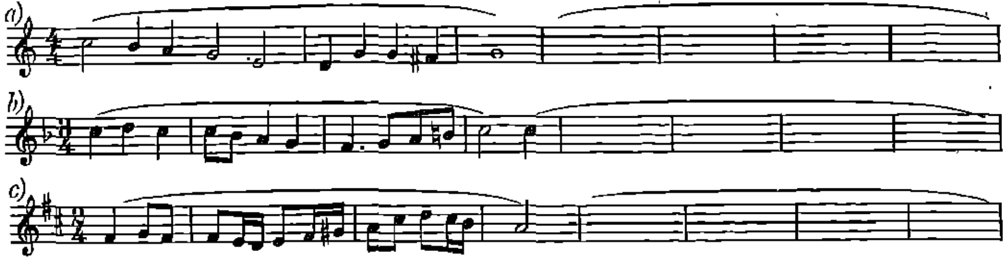


2. In a tune, where are the most usual places for a modulation (*a*) to the dominant; (*b*) to the subdominant?
3. To each of the following phrases add a phrase, equal in length, containing a modulation to the subdominant key. Name the new key in each case :—



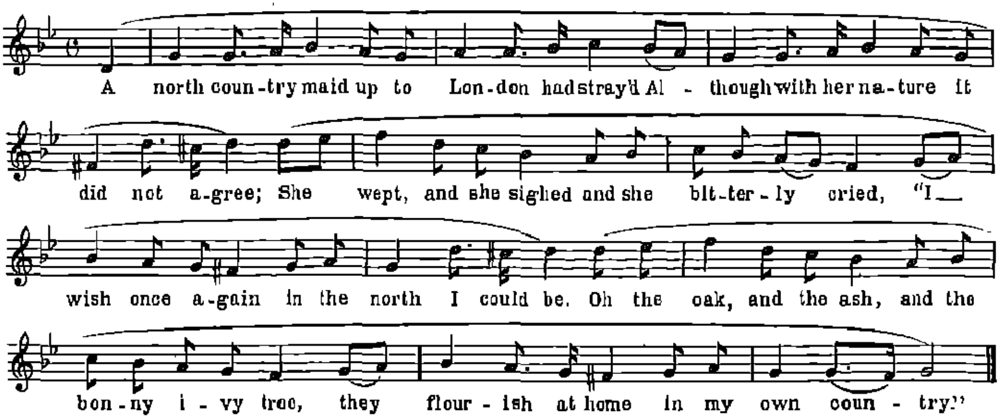
4. The following phrases contain a modulation to the dominant key. Add a phrase of equal length, containing a modulation to the subdominant key. (This modulation should come about halfway through the phrase you write) :—



5. Write two tunes, each 8 bars in length, as follows: (*a*) key F, $\frac{3}{4}$ time, 1st phrase to remain in the tonic key, 2nd phrase to contain a modulation to the subdominant key, (*b*) key D, $\frac{2}{4}$ time, 1st phrase to contain a modulation to the dominant key, 2nd phrase to contain a modulation to the subdominant key.

V. THE MINOR SCALE

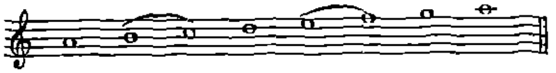
The Oak and the Ash


A north coun-try maid up to Lon-don had stray'd Al - though with her na-ture it
did not a-gree; She wept, and she sighed and she bit-ter-ly cried, "I—
wish once a-gain in the north I could be. Oh the oak, and the ash, and the
bon-ny i-vy tree, they flour-ish at home in my own coun-try."

Notes

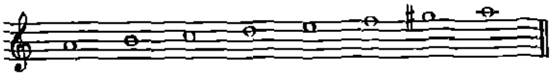
All the tunes you have studied and written in earlier lessons have been bright and jolly. The music has been written in the MAJOR KEY. The words of *The Oak and the Ash* are sad. In order that the tune may suit the sadness of the words, it has been written in the MINOR KEY. You must now learn something about the minor key.

There are many ways of arranging notes to form scales. For instance, play a diatonic scale upon the piano from C—C′. You will get a MAJOR SCALE because the semitones occur between the 3rd and 4th notes, and the 7th and 8th notes. Now play a diatonic scale from A—A′. You will get a different kind of scale because the semitones are in different places, namely, between the 2nd and 3rd notes and the 5th and 6th notes. This is called a MINOR SCALE:—



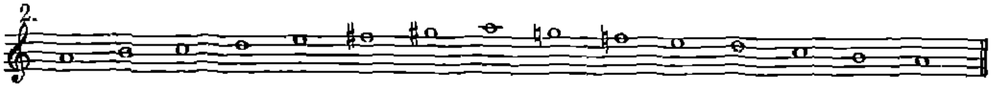
The minor scale, as we use it to-day, has been altered during the course of time. There are two forms of minor scale:—

1.



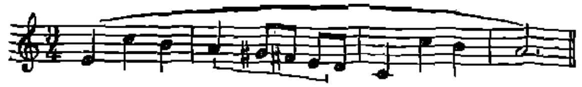
In this case, the 7th note has been raised a semitone. This is called the HARMONIC FORM OF MINOR SCALE. This form is very awkward to sing because of the distance between the 6th and 7th notes.

2.



In this case, both the 6th and 7th notes have been raised a semitone. There is now no awkward jump between the 6th and 7th notes. Notice that these two changes of notes occur when *going up only*. This is called the MELODIC FORM OF MINOR SCALE.

The principal note of a minor scale is *lah*. Tunes in the minor key frequently end with the notes *se, lah*. The tonic sol-fa names for the melodic form of minor scale, *ascending*, are *lah, te, doh, ray, me, BA, SE, lah*. The use of *ba* prevents the awkward jump between *se* and *fah*. Sometimes when coming *down* the minor scale you may use *lah, se, ba, me,* as in the following phrase:—

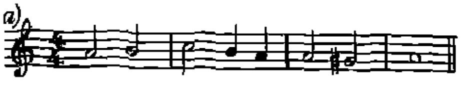


A. Easy.

Exercises

1. Sing the following exercises at sight, using the tonic sol-fa names for the notes. The first note in each case is *lah*; that is the key note:—

a)



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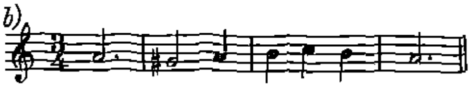

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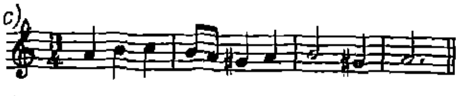

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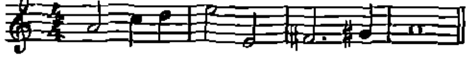
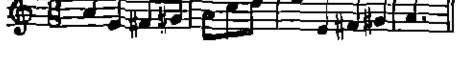


e)



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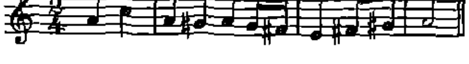
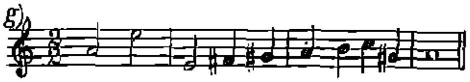
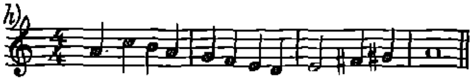
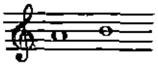


g)


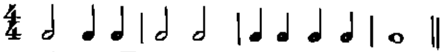
h)


2. Name the two forms of minor key.

3. In which form of minor key are the notes changed when going down the scale?

4. Write out the two forms of minor scale, beginning thus :— 
Under each note write its tonic sol-fa name.

5. Write melodies on the following rhythms. *Do not go from fah to se, because it is* awkward to sing. In some of the tunes, use the notes *me, ba, se, lah.* In each case *lah* should be in the 2nd space of the stave. Always end on *lah* :—

a)


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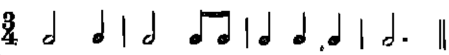

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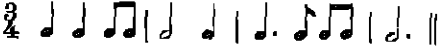

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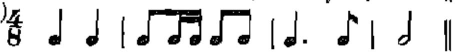

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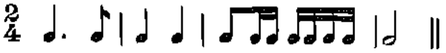

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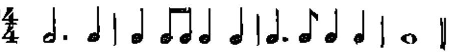
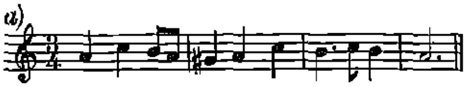
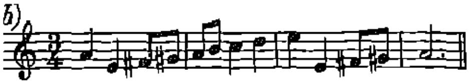
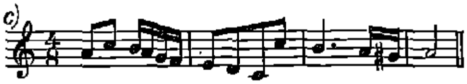


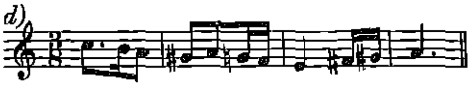
B. More Difficult.

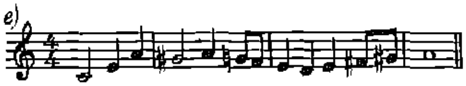
1. Sing the following tunes at sight, using the tonic sol-fa names for the notes. *Lah* is always in the 2nd space of the stave :—

a)


b)


c)


d)


e)


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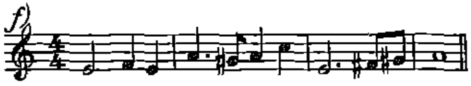
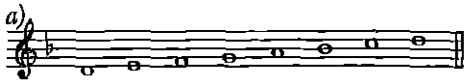


2. Why, in the melodic form of the minor scale, is the 6th note as well as the 7th note, raised a semitone?

3. The first note of each of the following scales is *lah.* Add the necessary accidentals (♯, ♭ or ♮) to make them into harmonic minor scales :—

a)


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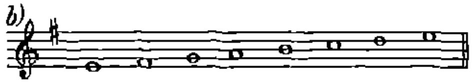

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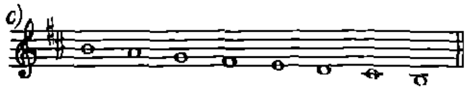
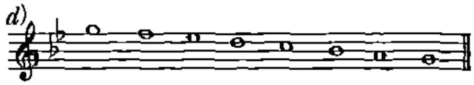
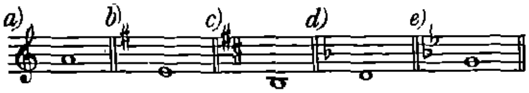
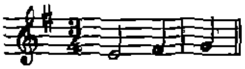


d)


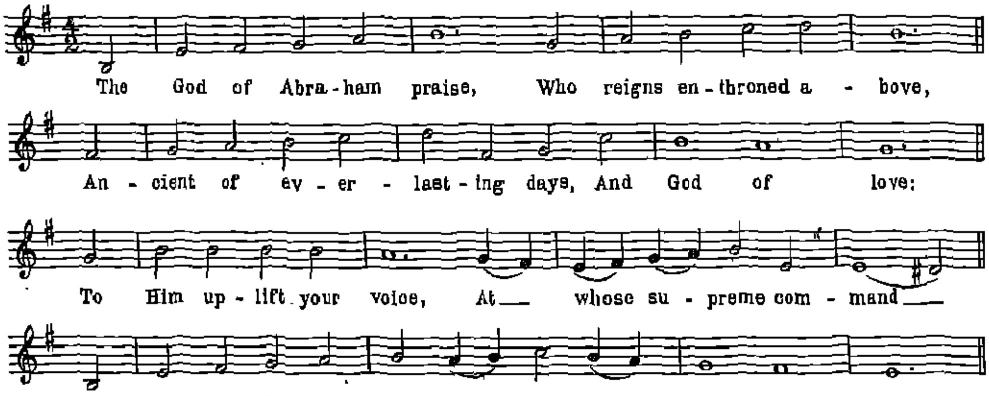
4. The note given in each of the following examples is *lah.* Begin on it, and write melodic minor scales, both ascending and descending :—



5. Write two phrases, each four bars in length, in a minor key where *lah* is in the second space of the treble clef.

6. Begin thus  and write a tune 8 bars in length (two 4-bar phrases), in a minor key.

VI. THE RELATIVE MINOR


The God of Abra-ham praise, Who reigns en-throned a - bove,
An - cient of ev - er - last-ing days, And God of love:
To Him up - lift your voice, At whose su - preme com - mand
From earth we rise, and seek the joys At His right hand.

Notes

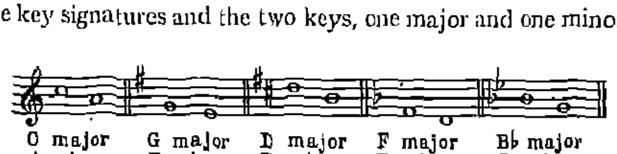
If you play or sing that tune you will know at once that it is in a *minor key*, because there is a note of sadness about it.

Suppose you had merely looked at the key signature, you would probably have said that it was in a *major key*; in fact, in G major. EVERY KEY SIGNATURE stands for TWO KEYS, a major, and a minor. You cannot tell which of the two it is until you have also looked at the music which follows. These two keys, the major and the minor which have the same key signature, have many notes in common; that is, they are closely related; so the minor key is called the RELATIVE MINOR.

This is how to find the relative minor of any given major key. Find *doh*, then go down to *lah*. That will give you the name of the relative minor.

For example, if *doh* is C, go down to *lah* and you arrive at the note A. Therefore, the relative minor of C major is A minor.

Consider these key signatures and the two keys, one major and one minor, which they stand for:—



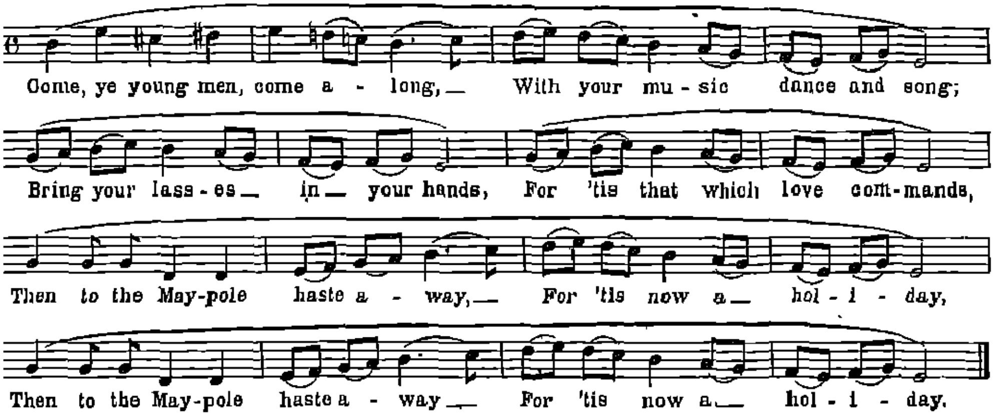
How can you decide whether a tune is the major key or the relative minor key? These two hints will be useful:—

1. If the tune begins or ends on *lah*, or if it seems to centre round *lah*, it is in the relative minor key.
2. If the note *se* is often used it will probably be in the relative minor key.

ere are some tunes about which it is difficult to decide, but those two hints will help to make up your mind about most tunes.

e following tune is in the key of E minor ; the use of the *ba, se, lah'* (the melodic minor) *tells us at once that it cannot be in* C major :—

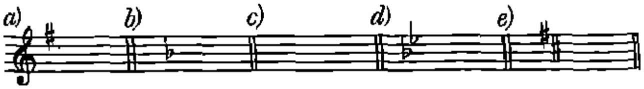
To The Maypole Haste Away


Come, ye young men, come a - long,— With your mu - sic dance and song;
Bring your lass - es — in — your hands, For 'tis that which love com - mands,
Then to the May-pole haste a - way,— For 'tis now a — hol - i - day,
Then to the May-pole haste a - way — For 'tis now a — hol - i - day.

Easy.

Exercises

For which two keys does each of the following key signatures stand ?—

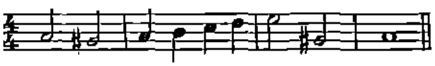


Write out, using crotchets, ascending and descending, the scale of A minor, E minor and B minor in the harmonic form. Add the key signature in each case.

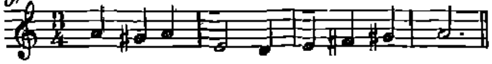
Write out, using minims, ascending and descending, the scales of E minor, A minor and B minor in the melodic form. Add the key signatures in each case.

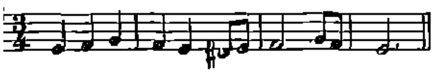
Name the relative minor keys of the following major keys : G, D, F, C, B♭.

Sing the following tunes at sight. They are all in minor keys, and each one begins on *lah* :—

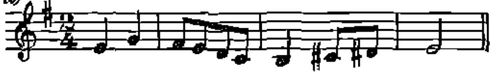


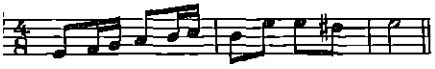
b)



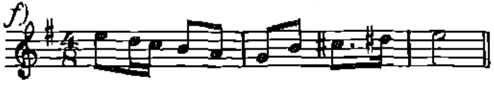


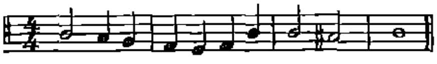
d)



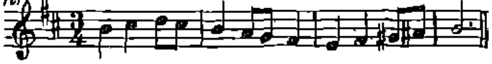


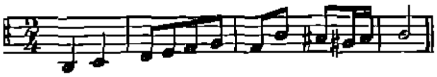
f)



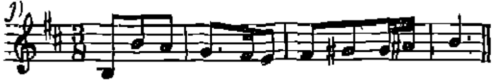


h)

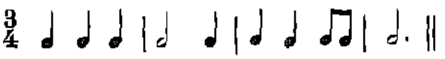
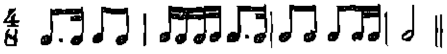




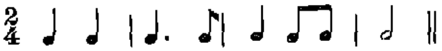
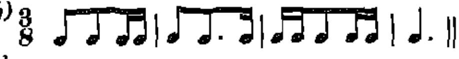
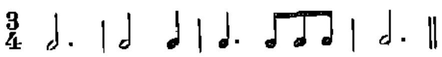
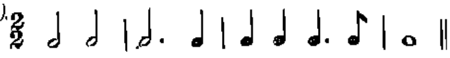
j)



6. On the following rhythms write tunes in the key of E minor. (Do not go from *fah* to *se* because it is awkward to sing):—

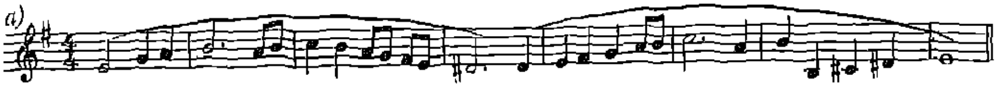
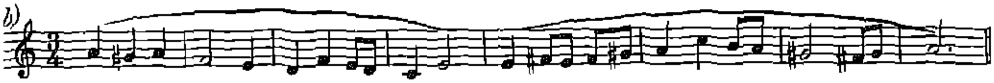
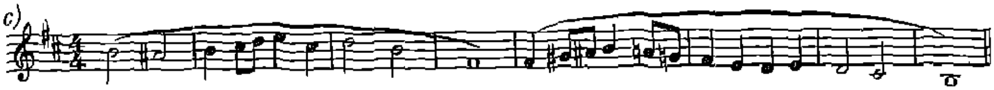
a)

b)


7. On the following rhythms write tunes in the key of B minor:—

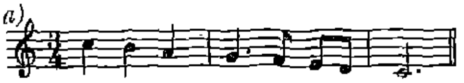
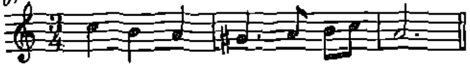
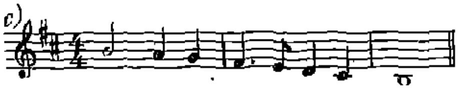
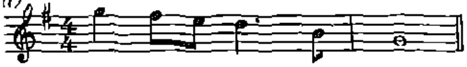
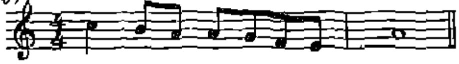
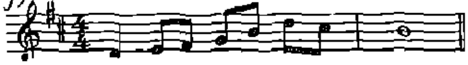
a)

b)

c)

d)


B. More Difficult.

1. Sing the following tunes at sight:—

a)

b)

c)


2. Name the keys in which the following phrases are written:—

a)

b)

c)

d)

e)

f)


Name the relative minors or relative majors of the above keys.

3. Why is a minor key called the "relative minor" of a certain major key? How would you tell whether a tune was in a major key or its relative minor?

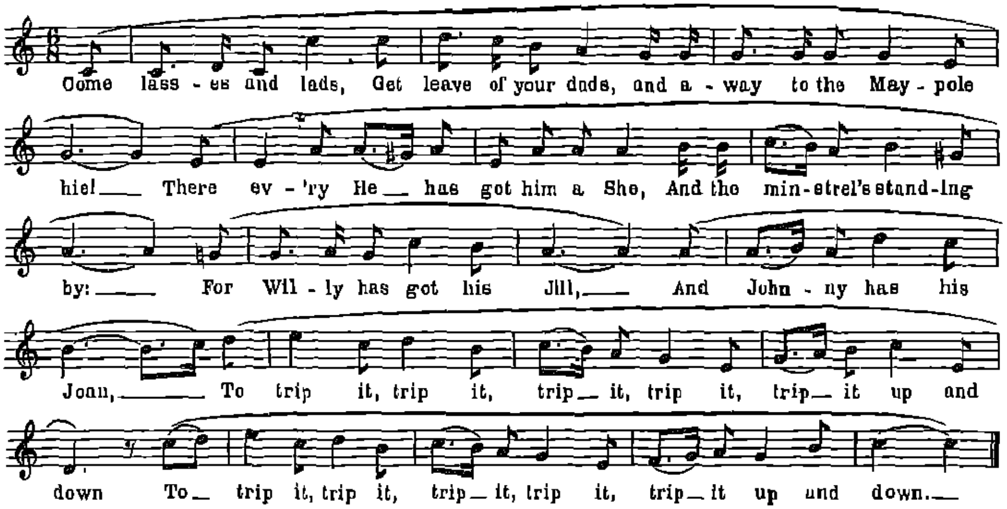
4. Write the key signatures of the following keys: E minor, D minor, B minor and G minor. Mark the position of the principal note of the key in each case.

5. Write two 4-bar phrases, one in B minor and the other in E minor. Choose your own time signature.

6. Write an 8-bar tune, consisting of two 4-bar phrases, in $\frac{3}{4}$ time in the key of A minor. (See that there is a long note at the end of the first phrase.)

VII. MODULATION TO THE RELATIVE MAJOR OR MINOR KEY

Come Lasses and Lads


Come lass - es and lads, Get leave of your dads, and a - way to the May - pole
hie! There ev - 'ry He has got him a She, And the min - strel's stand - ing
by: For Wil - ly has got his Jill, And John - ny has his
Joan, To trip it, trip it, trip it, trip it, trip it up and
down To trip it, trip it, trip it, trip it, trip it up and down.

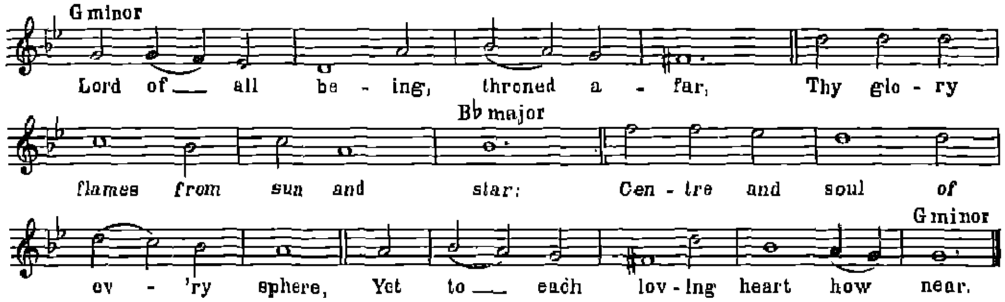
Notes

The tune *Come Lasses and Lads* is in the key of C major. Simply by looking at the key signature one can say only that it is in the key of C major *or* its relative minor, A minor. It begins and ends on *doh* and seems to centre round *doh*, therefore it is correct to say that the key is C major.

Now look at the second phrase. The note *se* is used; also, at the cadence there are the notes *se*, *lah*. This means that a modulation has been made to A minor, the relative minor key.

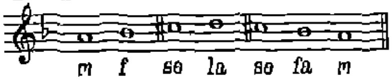
The third phrase begins with *soh*, and very soon the tune is once again centred around *doh*, which shows that it has returned to the key of C major.

Sometimes the opposite occurs. A tune begins and ends in a minor key, but during the course of it, there is a modulation to the relative major key.

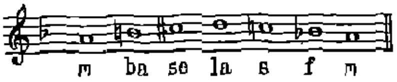

G minor
Lord of all be - ing, throned a - far, Thy glo - ry
B♭ major
flames from sun and star: Cen - tre and soul of
G minor
ev - 'ry sphere, Yet to each lov - ing heart how near.

You know that if you write the harmonic or melodic forms of the minor scale there are certain notes which are changed from what the key signature tells you to use. For instance, in A minor, according to the key signature, no sharps or flats are to be used, but actually in the harmonic form you use G♯ and in the melodic form both F♯ and G♯. Now what happens in the keys of D minor and G minor?

D Minor

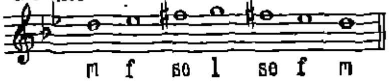


Harmonic Form

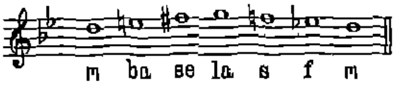


Melodic Form

G Minor



Harmonic Form

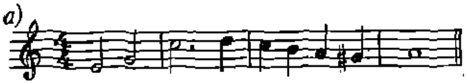


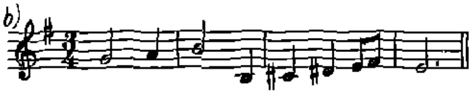
Melodic Form

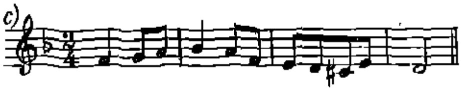
Exercises

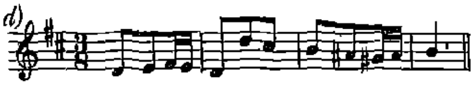
A. Easy.

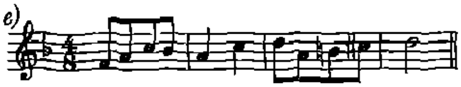
1. *Sing the following tunes at sight, each of which begins in a major key and modulates to its relative minor key:—*

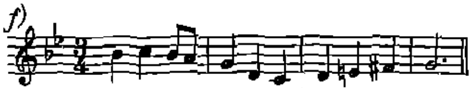
a)


b)


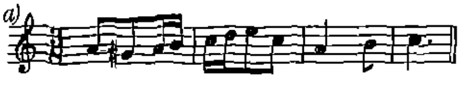
c)


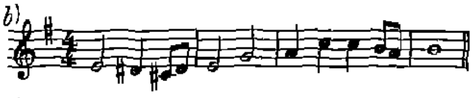
d)


e)


f)


2. Sing the following tunes at sight, each of which begins in a minor key, and modulates to its relative major key:—

a)


b)


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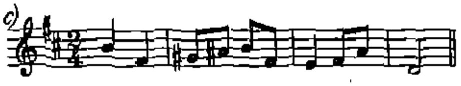
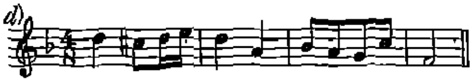
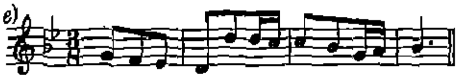
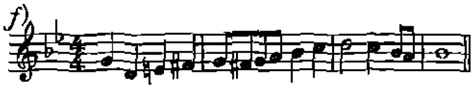
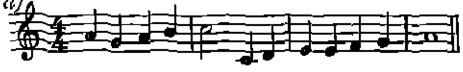


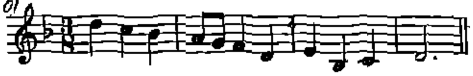
d)


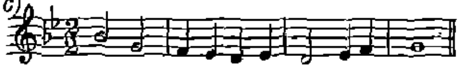
e)


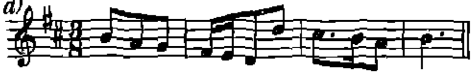
f)


3. Add accidentals (♯, ♭ or ♮) so that the following phrases shall be in the keys named:—

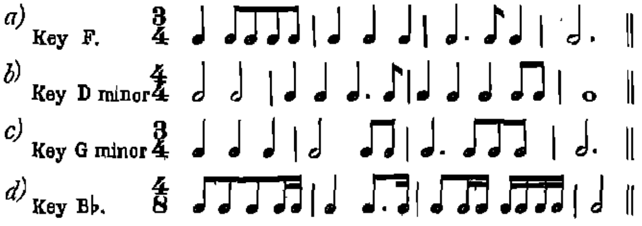
a) A minor


b) D minor


c) G minor


d) B minor


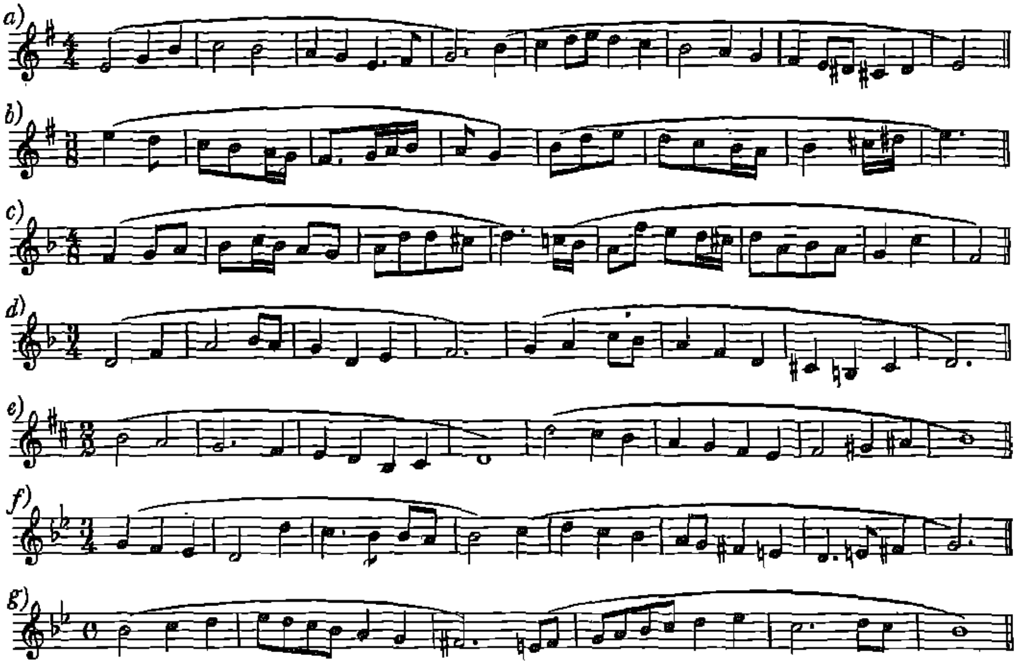
4. On the following rhythms write tunes beginning in the keys named, and modulating to their relative major or minor keys :—



5. Write out, using crotchets, ascending and descending, the scales of D minor and G minor, in the melodic form. Add the key signature in each case.

B. More Difficult.

1. Sing the following tunes at sight :—



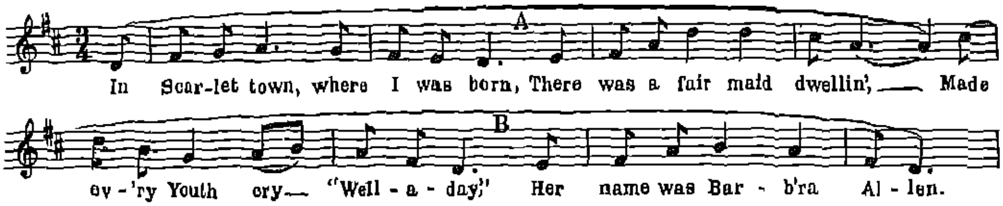
2. (*a*) Transpose (i.e., re-write in a new key) tune (*a*) in the above set into the key of D minor.
   (*b*) Transpose tune (*c*) in the above set into the key of D major.
   (*c*) Transpose tune (*e*) in the above set into the key of A minor.
   (*d*) Transpose tune (*f*) in the above set into the key of E minor.

3. Write the following minor scales in harmonic form, beginning on the *highest* note : A, D, G and B. Add the key signature in each case.

4. Write the following minor scales (descending and ascending) in melodic form, beginning on the *highest* note: E, G, D and A. Add the key signature in each case.
5. (*a*) Write a 4-bar phrase, beginning in A minor, and modulating to its relative major.
   (*b*) Write a 4-bar phrase, beginning in D minor, and modulating to its relative major.
   (*c*) Write a 3-bar phrase, beginning in G major, and modulating to its relative minor.
   (*d*) Write a 4-bar phrase, beginning in D major, and modulating to its relative minor.

VIII. FORM—1

Barbara Allen.


A
In Scar-let town, where I was born, There was a fair maid dwellin', Made
B
ev-'ry Youth cry "Well-a-day;" Her name was Bar-b'ra Al-len.

Notes

Before a house is built, a plan is drawn by an architect. He has to see that a sufficient number of rooms are included; there must be doors, windows, chimneys; the foundations must be made safe, and the roof and walls must be so made that they keep out the rain and wind.

Not only must all these things be done, but the architect must also make certain that everything is properly arranged. It would be no use making the staircase so that it led out of the window, or having a doorway so that when you went through it you found yourself up the chimney. All these things must be in their proper places: in other words, the house must be built in a proper form.

Take another illustration. If you are talking to someone, you must not only use the right words to express what you have to say, but you have to be careful to arrange them in some sort of order or form which the other person can follow. The following words do not make sense: "Dog the of beware." But if you arrange them in another form, everybody will understand what you mean: " Beware of the dog." The sentence is now in proper form.

The same is true of music. If a composer is going to say clearly what is in his mind, he must write it in a form which makes sense, a form which we can understand and follow.

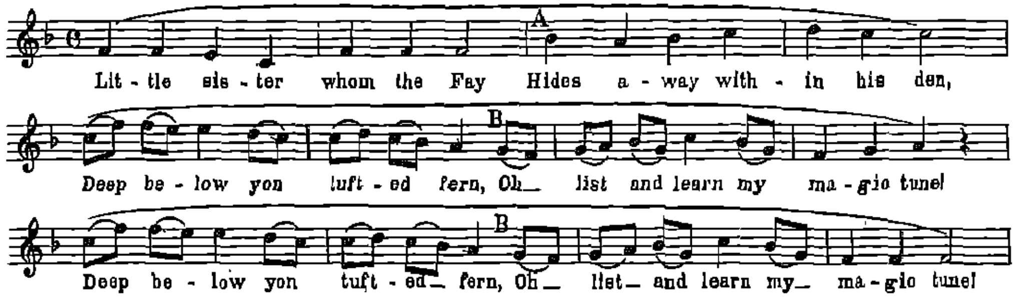
Very often a long piece of music, such as a sonata or a symphony, is difficult to enjoy because you are not able to follow what is happening and what the composer is trying to say. Even short tunes, like *Barbara Allen*, are much more interesting to sing if you know something about their form.

The tune *Barbara Allen*, consists of two phrases, the first of which may be called A, and the second B. In phrase A, the composer, as it were, makes a statement, then he writes another short phrase to answer and balance it; this is phrase B.

All the tunes you have written so far have been in this form: they have consisted of two 4-bar phrases, or two 3-bar phrases, in the form of a statement and answer. This form is called AB FORM, TWO-PART FORM or BINARY FORM.

Here is another tune in binary form.

More of Cloyne.


A
Lit - tle sis - ter whom the Fay Hides a - way with - in his den,
B
Deep be - low yon tuft - ed fern, Oh__ list and learn my ma - gic tune!
B
Deep be - low yon tuft - ed__ fern, Oh__ list__ and learn my__ ma - gic tune!

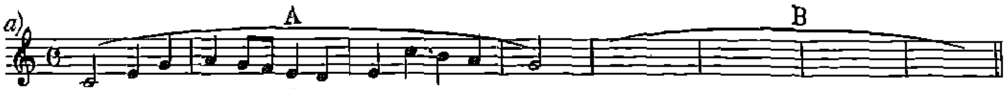
Notice that phrase B occurs *twice*. This does not alter the form of the tune: it is still in binary form. Sometimes when you are talking to a friend you repeat several words in order to make sure that you have made yourself clear; but you do not alter the form of your sentence. So in this tune: there are only two phrases, statement and answer, but one of the phrases, the answer, is repeated, with a very slight alteration of the last two notes. It may be called the ABB form. Other tunes in binary form are *Ca' the Ewes to the Knowes*, *Golden Slumbers*, and *The Bailiff's Daughter of Islington*.

Exercises

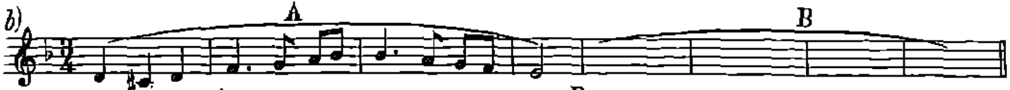
A. Easy.

1. Explain fully what is meant by binary form. What other names are also given to this form?
2. What is the difference between AB form and ABB form?
3. If a tune is written in AABB form, it would still be in binary form. Explain why this is the case.
4. To each of the following phrases add a phrase of equal length to make a complete tune in binary form:—

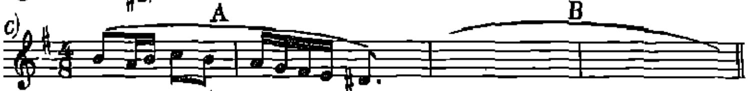
a)



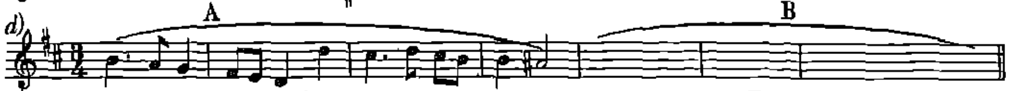
b)



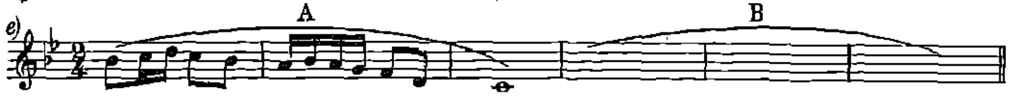
c)



d)



e)



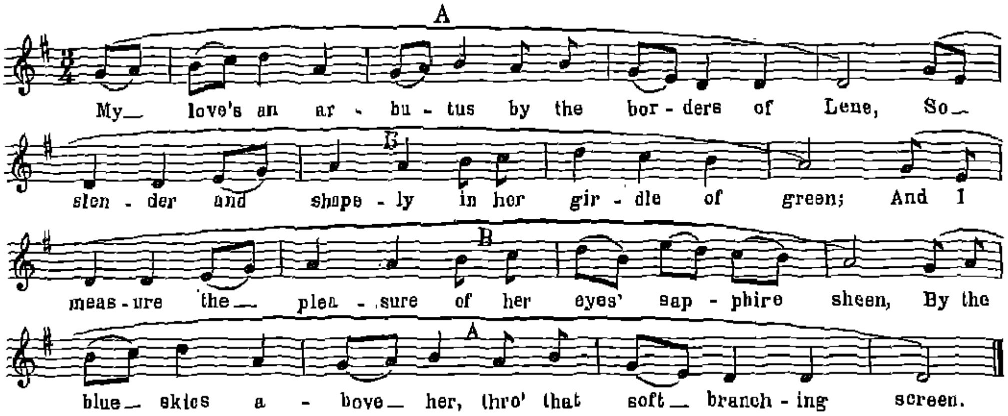
5. Write a tune in binary form, choosing your own time and key signatures.

B. More Difficult.

1. Why must music be written in any special form ?
2. Write tunes in binary form according to the following instructions. (The letters A and B refer to the two phrases which make up a tune in binary form.) In those cases where a phrase is repeated, a few of the notes may be altered if you wish :—
   - (*a*) Key G. AB.
   - (*b*) Key C. ABB.
   - (*c*) Key D minor. AB.
   - (*d*) Key B minor. AAB.
   - (*e*) Key B♭. AABB.

IX. FORM—2

My Love's an Arbutus.


A
My love's an ar - bu - tus by the bor - ders of Lene, So
slen - der and shape - ly in her gir - dle of green; And I
B
meas - ure the plea - sure of her eyes' sap - phire sheen, By the
B
blue skies a - bove her, thro' that soft branch - ing screen.
A

Notes

In the last lesson you learnt that all music must be written in some particular form or shape, or it would not be possible to follow what the composer was saying. Examine the form of the above tune. An important difference between the form of this and that of *Barbara Allen* is that in *My Love's an Arbutus* the first phrase is repeated at the end. If we use letters for the phrases, as before, the shape of this tune is ABBA.

Now remove the second B, because that is only a repetition of the first B, and the result is ABA. That is to say that there are *three* sections to this tune. In other words the composer has made a statement, then he has made a contrasted statement, and finally he has repeated his first statement.

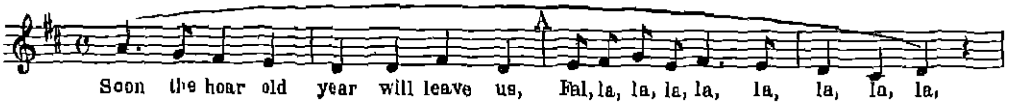
This is called ABA FORM, THREE-PART FORM or TERNARY FORM.

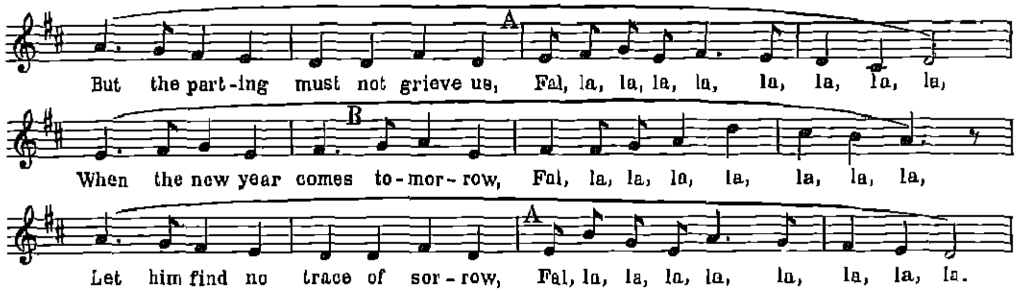
Now notice the difference between binary form and ternary form :—

BINARY.	TERNARY.
2. A. Statement. B. *Answer.*	3. A. Statement. B. *Contrast.* A. Re-statement.

Here is another tune in ternary form.

New Year's Eve.


A
Soon the hoar old year will leave us, Fal, la, la, la, la, la, la, la, la,


A
But the part-ing must not grieve us, Fal, la, la, la, la, la, la, la, la,
B
When the new year comes to-mor-row, Fal, la, la, la, la, la, la, la,
A
Let him find no trace of sor-row, Fal, la, la, la, la, la, la, la, la.

The opening phrase, A, is repeated at once (this does not affect the form of the tune); then there is the contrasted phrase, B; and finally the re-statement of the first phrase, A. Sometimes when a phrase is repeated a few of the notes are changed for the sake of variety: compare the first and last appearances of A.

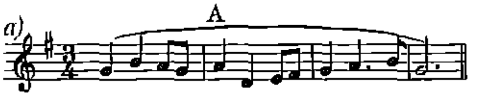
You should fully understand both binary form and ternary form. They are very simple forms, and they are the roots from which all the other forms used in music have grown. Even long pieces, such as symphonies, and sonatas, are written in forms that are based on these two simple basic forms.

Exercises

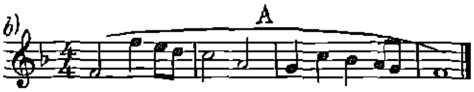
A. Easy.

1. What do you understand by the term *ternary form*? What other names are also given to this form?
2. Describe the difference between ternary form and binary form.
3. The letters A and B stand for the phrases of a tune. Which of the following are in binary form and which in ternary? (*a*) ABA, (*b*) AB, (*c*) AAB, (*d*) ABBA, (*e*) AABB, (*f*) AABBA.
4. Begin with the following phrase, A; add another phrase of equal length, B; then repeat phrase A, making a few changes in the notes, if you wish, to complete a tune in ternary form:—

a)



b)

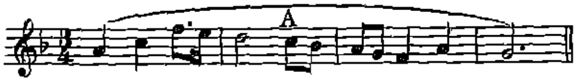


5. Begin with the phrases given in Exercise 4, and write tunes in the form of AABA. A few notes may be changed when you repeat the phrases. Mark your phrases A, B.
6. Begin with the phrases given in Exercise 4, and write tunes in the form of ABBA. Mark your phrases A, B.
7. Write a tune in ternary form, AABA, treating the phrases in the following way. Key D major.
   A—4-bar phrase ending in the tonic key.
   A—the same phrase, slightly altered to end in the dominant key.
   B—4-bar phrase to end in the subdominant key.
   A—the first phrase repeated.

B. More Difficult.

1. Show, in tabulated form, the difference between binary form and ternary form.
2. Turn to previous lessons in this book and say which of the following songs are in binary form and which in ternary form: (*a*) *The British Grenadiers*, (*b*) *Pretty Polly Oliver*, (*c*) *The Hunt Is Up*, (*d*) *Afton Water*, (*e*) *To the Maypole Haste Away*.

3. Write a tune, 16 bars in length (i.e., four 4-bar phrases) *in ternary form, containing no* modulation.
4. Begin with the following phrase, and write tunes in ternary form according to the instructions given. Mark your phrases A, B :—



(*a*) A—the given phrase.
B—4-bar phrase ending in the dominant key.
B—previous phrase, altered to end in subdominant key.
A—first phrase, altered to end in tonic key.

(*b*) A—the given phrase.
A—the given phrase altered to end in key of relative minor.
B—4-bar phrase to end in dominant key.
A—first phrase, altered to end in tonic key.

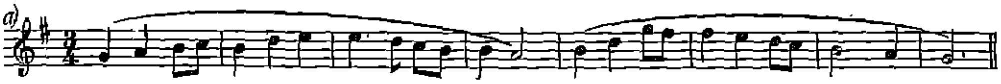
(*c*) A—the given phrase.
B—4-bar phrase to end in key C.
B—previous phrase altered to end in key G minor.
A—first phrase, altered to end in tonic key.

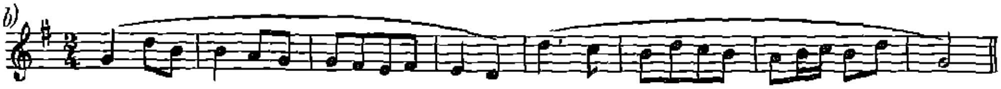
5. Write a tune, 16 bars in length, in $\frac{4}{4}$ time. It must be in ternary form and include a modulation to the dominant and subdominant keys.
6. Write two tunes, each 16 bars in length, in any key and time you please, to show the difference between binary and ternary forms. Begin each tune with the same phrase, and let phrase B in each case be similar. There should be suitable modulations.

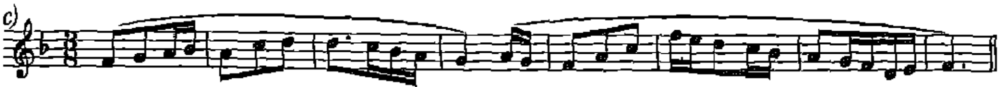
ADDITIONAL EXERCISES

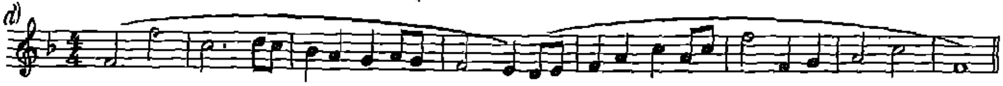
I. Four-bar Phrases

1. Sing the following tunes at sight. Take a breath at the end of each phrase :—

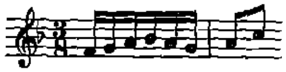
a)


b)


c)


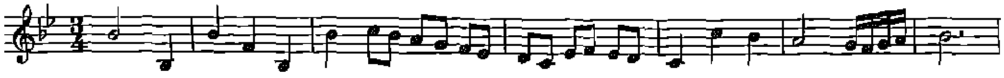
d)


2. What are the two important points about phrases mentioned in this lesson ?
3. Begin as follows, and write a tune consisting of two phrases, each 4 bars in length :—


Mark the phrases.

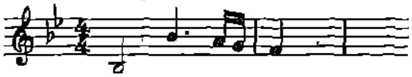
4. Write a tune 8 bars in length, in the key of G. Choose your own time signature, and mark the phrases with a slur.

5. Criticise the following tune :—



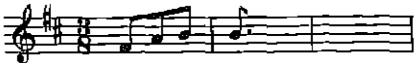
II. Three-bar Phrases

1. What is the difference between the phrases of *Pretty Polly Oliver* and those of *The Blackbird* ? Write two original tunes, each consisting of two phrases, to illustrate your answer.
2. What is the most usual phrase length ? Give illustrations of your answer in $\frac{3}{4}$ time and in $\frac{4}{8}$ time.
3. When a composer writes a tune, do you think he is first of all concerned with the phrases or the bars ? Why does he use bar lines ?
4. Begin as follows and write two tunes, the first consisting of two 3-bar phrases, and the other consisting of two 4-bar phrases :—

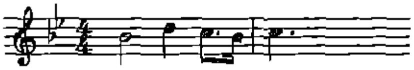


III. Modulation to the Dominant Key

1. Explain the word *modulation*.
2. What note do you use (tonic sol-fa name) to make a tune modulate from the tonic to the dominant key ? Write this note, on a stave, in the keys of C, D, F, G and B♭.
3. If a tune is in the key of C and modulates to the dominant, to what key does it go ? What are the dominant keys of the following : D, F, B♭ and G ?
4. Begin as follows, and write a tune consisting of two 4-bar phrases. It should contain a modulation to the dominant key :—



5. Begin as follows, and write a tune consisting of two 3-bar phrases. There should be no modulation :—

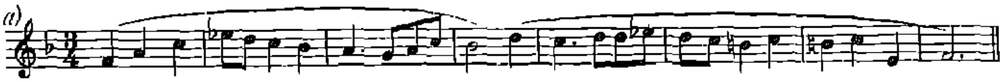


Now write another tune, beginning in the same way, with a modulation to the dominant key.

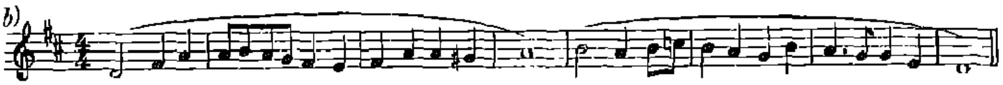
IV. Modulation to the Subdominant Key

1. Tunes written in the following keys are to modulate to the subdominant key. Into what keys would they go : C, F, B♭, D, G. Write on a stave the note which would take them into these keys.
2. Do you think the modulations in the following tunes are satisfactory ? Give reasons for your answer :—

(a)

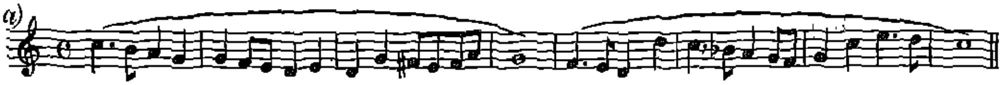


(b)

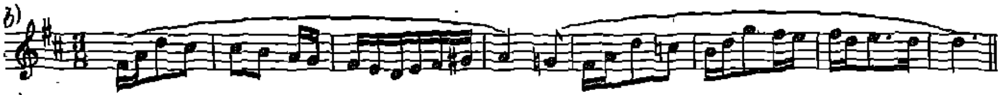


3. Name the keys in which the following tunes begin, and also all the keys to which they modulate.

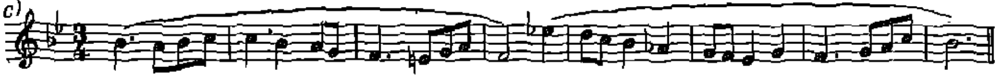
a)



b)

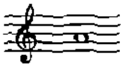


c)

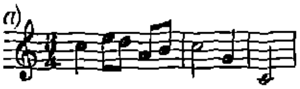


4. Write a 6-bar tune containing a modulation to the subdominant key.
5. Write an 8-bar tune, containing suitable modulations. Name the keys to which you modulate.

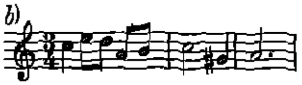
V. The Minor Scale

1. Write out the scale of C major. Then write out a minor scale beginning on  in *both* forms, ascending and descending. Mark the semitones in all three scales.
2. In which kind of scale or key, major or minor, would you write (*a*) a funeral march, (*b*) a wedding march, (*c*) a song of triumph ? Give your reason in each case.
3. State which of the following phrases are in a major key and which are in a minor. Give reasons :—

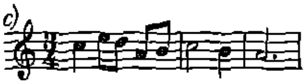
a)

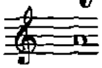


b)



c)

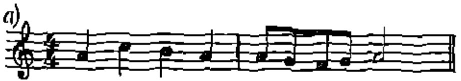


4. Write a 4-bar phrase, in a minor key, beginning on  , but without using the notes *se* or *ba*.
5. Write a tune, 8 bars in length, in a minor key, where *lah* is in the second space of the treble clef.

VI. The Relative Minor

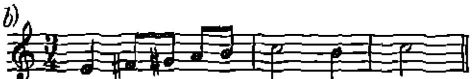
1. Add accidentals (♯ or ♮) so that the following tunes shall be in the keys named :—

a)



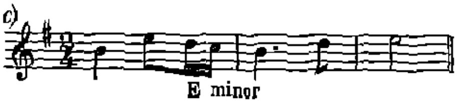
A minor

b)



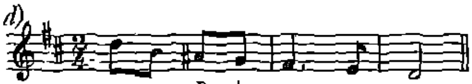
C major

c)



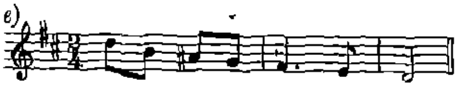
E minor

d)



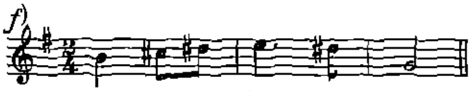
B minor

e)



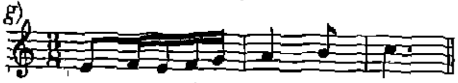
D major

f)



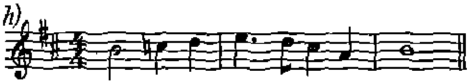
G major

g)

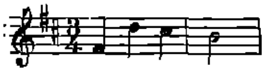


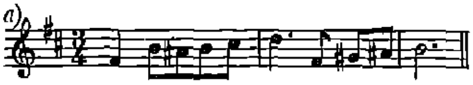
A minor

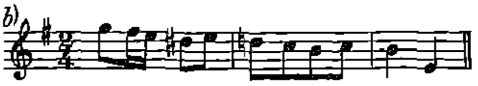
h)



B minor

2. Begin as follows :and (*a*) write a 6-bar tune in the major key, (*b*) write an 8-bar tune in its relative minor key.
3. Write an 8-bar tune in the key of E minor, without using the notes *se* and *ba*. Choose your own time signature.
4. Write down the tonic sol-fa names of the notes in the following phrases. Name the key of each phrase.

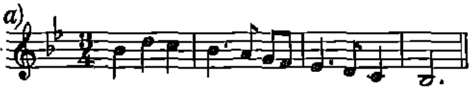
a)


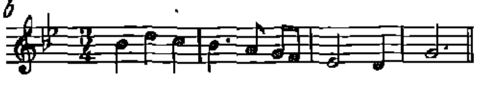
b)


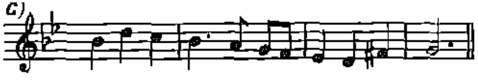
5. Write a tune consisting of four 4-bar phrases, in the key of C major, according to the following plan :—
1st, phrase in tonic key. 2nd, phrase to modulate to the dominant. 3rd, phrase to end in the relative minor. 4th, phrase to contain a modulation to the subdominant key, and to end in the tonic. Name the keys.

VII. Modulation to the Relative Major or Minor Key

1. Tunes written in the following keys modulate to their relative major or minor keys. Name the new key in each case :—B minor, C major, G major and G minor.
2. Write an 8-bar tune (two 4-bar phrases), in each of the following keys; the first phrase should end in the relative major or relative minor, and the second phrase in the original key : D minor, D major, E minor, B♭ major.
3. How would you decide whether a tune was in the key of B♭ major or G minor ? Name the keys in which the following phrases are written, and say how you decide in each case :—

a)


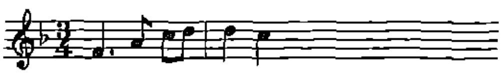
b


c)


4. Write a tune consisting of four 4-bar phrases, in the key of B minor, according to the following plan : 1st phrase in tonic key. 2nd phrase to end on the note *se*. 3rd phrase to modulate to the relative major key. 4th phrase to modulate to the key of G major, and to end in the original key.
5. Write a tune consisting of four 3-bar phrases, in the key of B♭ major, according to the following plan : 1st phrase in tonic key. 2nd phrase to modulate to the dominant. 3rd phrase to end in the relative minor. 4th phrase to contain a modulation to the subdominant, and to end in the tonic. Name the keys.

VIII. Form—1

1. Begin as follows and write tunes in binary form, according to the following instructions :—



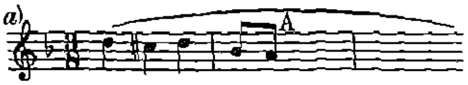
(*a*) AB ; with a modulation to the dominant at the end of the first phrase.
(*b*) AAB ; phrase A to be altered slightly when repeated, to contain a modulation to the relative minor.
(*c*) AABB ; phrase A to be altered slightly when repeated, to contain a modulation to the dominant ; phrase B to contain a modulation to the subdominant.

2. Write a tune 12 bars in length, consisting of four equal phrases, on the plan AABB. The key is E minor, and it may contain a modulation to the relative major.
3. Write a tune 16 bars in length in binary form. It should contain suitable modulations. Name them.

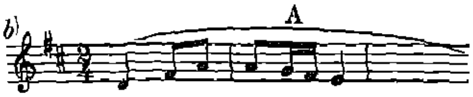
IX. Form—2

1. Write an 8-bar tune in binary form, marking the phrases A and B. Then extend it into a 16-bar tune, using the same phrases, with any little changes you think necessary, but still keeping it in binary form. Now change it into a tune in ternary form, as far as possible using the same two phrases.
2. Begin as follows, and write tunes in ternary form, arranging the phrases in various ways and including such modulations as you think fit. Mark the phrases, and name all the keys to which you modulate.

a)



b)



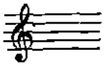
THIRD YEAR'S COURSE
OF
MUSIC

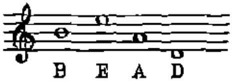
I. THE BASS OR F CLEF—1

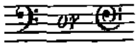
At the age of 14 years to 16 years a boy's voice usually " breaks " ; certain changes take place in the voice box (Adam's apple), so that he is no longer able to sing the high treble notes he could at an earlier age. His voice will either "break " suddenly, or else gradually sink lower in pitch, until it becomes tenor, baritone or bass. When it has reached this state, he will probably find that music most suitable for him to sing will no longer be written in the treble clef, but in the *bass clef.*

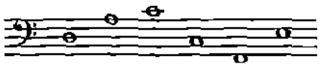
A girl's voice, too, changes, but not nearly so much as a boy's. When a girl is fully grown up, she has a soprano, mezzo soprano (medium), or contralto (low) voice. The music for these women's voices is still written in the *treble clef.*

There are certain instruments whose music is written entirely or partly in the bass clef—pianoforte, organ, cello, bassoon, trombone ; so it is wise for both girls who wish to play one of these instruments, and boys who will want either to play or sing, to learn to read music written in the bass clef.

You will remember that this sign  is called the treble or G clef, because it shows the position on the stave of the note G above middle C, which is on the 2nd line. When you know that fact, you are able to find out the position of any other note you require,

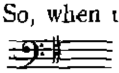
e.g., 

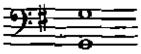
Here is the sign that is used to show that music is written in the bass clef 

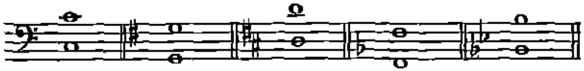
It is called the *bass or F clef.* It marks the position of the note F *below* middle C, which is on the 4th line. When you know that fact, you are able to find out the position of any other note you require, e.g., 

Notice carefully : When you write the bass clef sign, you must begin on *the 4th line* ; also, the two dots are placed one on each side of *the 4th line.*

Before going further with this lesson, work exercises 1—3 in each grade.

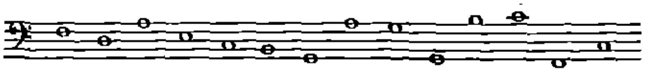
Now you should learn how the key signatures are written when the bass clef is used. Take the signature for the key of G. When you write that in *the treble clef,* you put a sharp, F♯, on the top line, which is the F line. So, when using *the bass clef,* you put a sharp, F♯, on *the 4th line, which is the F line. Thus*  *is the key signature of G major when the bass* or F clef is used.

This is the position of *doh* :— 

Here are some other key signatures which you can easily study for yourself. The position of *doh* is shown in each case :— 

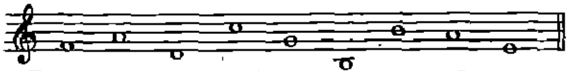
A. Easy.

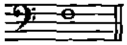
Exercises

1. Name these notes :— 

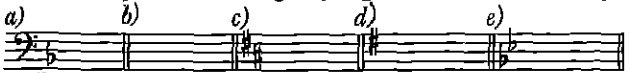
2. Write the following notes in the bass clef: F, C, E, D, A, G, B.

3. Write the following notes, in the bass clef, so that they sound *one octave lower*:—



For example: The first note given is F *above* middle C, therefore, the note you have to write is F *below* middle C, thus:— 

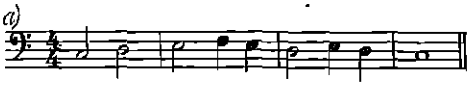
4. What keys are shown by the following key signatures? Show the position of *doh* in each case:—



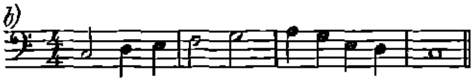
5. Write out the following scales, using the bass clef. Add the key signature in each case: G major, C major, B♭ major.

6. Sing the following exercises at sight, using the tonic sol-fa names for the notes. (This is *for practice in reading from the bass clef, but the sounds you sing will be actually* an octave higher than those written.) Each exercise begins on *doh*:—

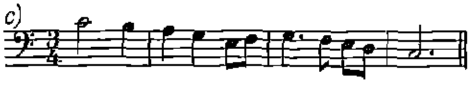
a)



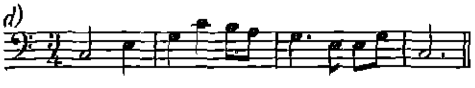
b)



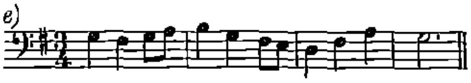
c)



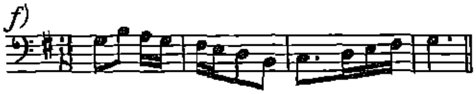
d)



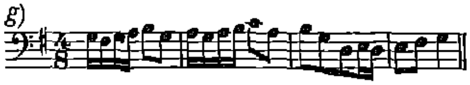
e)



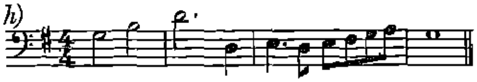
f)



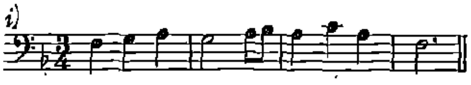
g)



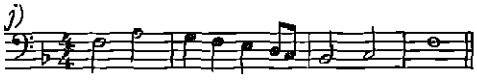
h)



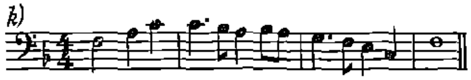
i)



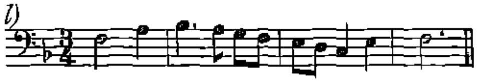
j)



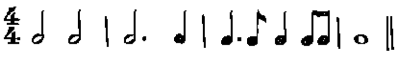
k)

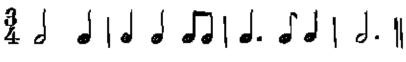


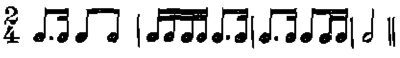
l)

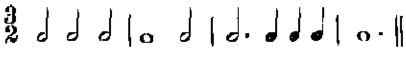


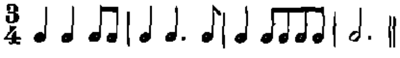
7. Write phrases in the bass clef, using the following rhythms:—

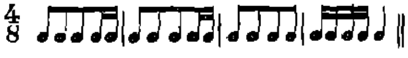
a) Key C 

b) Key G 

c) Key G 

d) Key C 

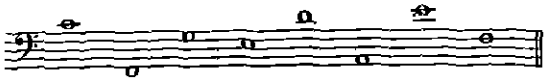
e) Key F 

f) Key F 

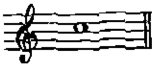
8. Write three phrases, one in key C, one in key G, and one in key F, using your own rhythms. Use the bass or F clef.

B. More Difficult.

1. (*a*) Name the following notes :

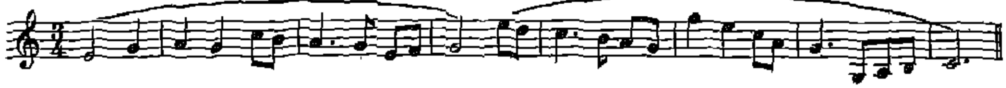


(*b*) Write the notes which sound *one octave higher* than those given. Use the treble clef, e.g.,



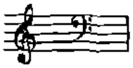
2. Turn to Question 6 in the above set of *Easy* exercises. Name all the notes in the first 4 phrases, and re-write them, using the treble clef, to sound *one octave higher*.

3. Re-write the following tune, using the bass clef, to sound *one octave lower* :—



4. Write the key signatures for the following keys. Use the bass clef, and mark the position of *doh* : F, G, D, C, B♭.

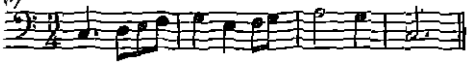
5. What are the full names of the following signs ?— Give reasons for their names.



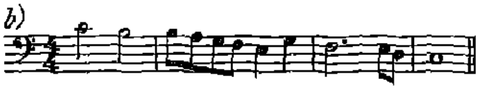
6. Write out the following scales, in crotchets, using the bass clef. Add the key signature in each case ; D, B♭, C, G, F.

7. Sing the following exercises at sight, using the tonic sol-fa names for the notes. (This is practice in reading from the bass clef, but the sounds you *sing* will be actually an octave higher than those written.) Each exercise begins on *doh* :—

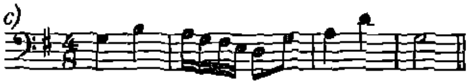
a)



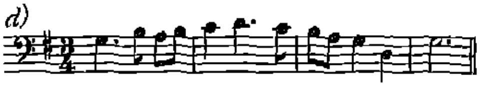
b)



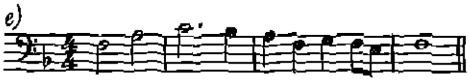
c)



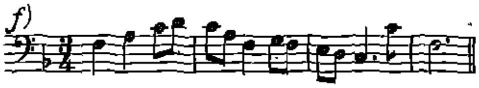
d)



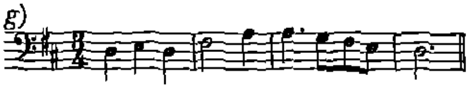
e)



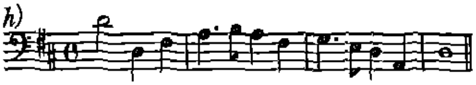
f)



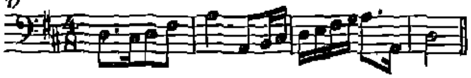
g)



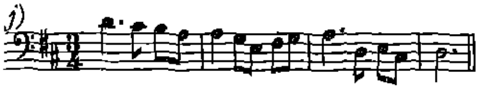
h)



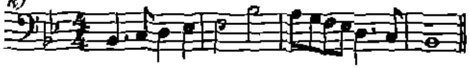
i)



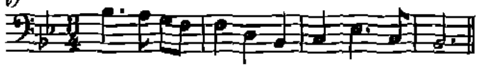
j)

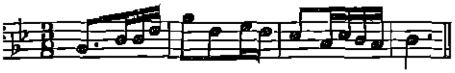


k)

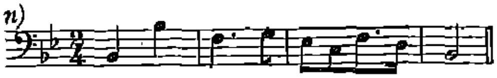


l)





n)



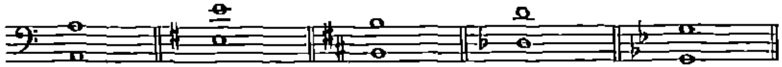
Write two 8-bar tunes, one in key D and the other in key B♭. Mark the phrases.

II. THE BASS OR F CLEF—2

It is now necessary to study minor keys and the bass or F clef.

From an earlier lesson you will remember that every key signature stands for *two keys*—najor, and its relative minor. To decide in which of those two keys the music is written, u must then study the piece itself ; if it contains the note *se* a number of times, and ends the note *lah* (which is the principal note in a minor key) then you can be sure that the ne is in the *minor* key.

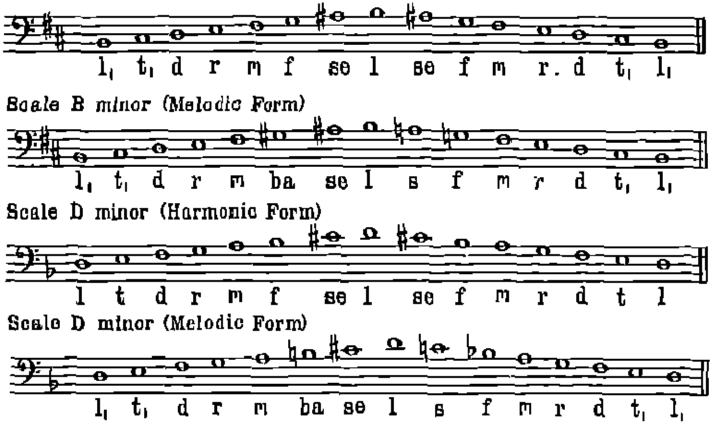
The following examples show the key signatures of some of the minor keys ; the name the relative major key is given in brackets and the position of *lah* is also shown :—



Key A minor (C major) Key E minor (G major) Key B minor (D major) Key D minor (F major) Key G minor (B♭ major)

In writing scales in the minor key, using the *bass or* F *clef*, the same accidentals (♯, ♭ and ♮) ll be necessary as when using the treble or G clef.

r example :—



Scale B minor (Harmonic Form)

Scale B minor (Melodic Form)

Scale D minor (Harmonic Form)

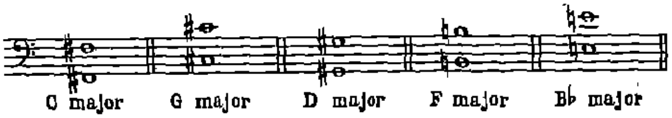
Scale D minor (Melodic Form)

l, t, d r m f se l se f m r. d t, l,
l, t, d r m ba se l s f m r d t, l,
l t d r m f se l se f m r d t l
l, t, d r m ba se l s f m r d t, l,

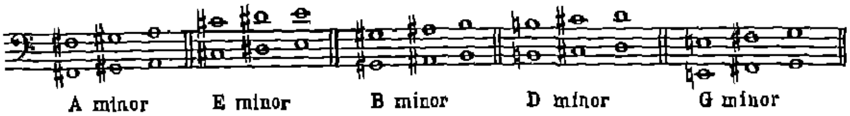
Before going further with this lesson, work exercises 1—3 in each grade.

The rules for writing in the bass or F clef are exactly the same as those for writing tunes the treble or G clef. For example : 1. The phrases should be of equal length. 2. There ould not be too many repeated notes or big leaps. 3. It is best to end on a note of the *doh* ord. 4. The last note of a tune should generally come on *the first beat of the last bar*, except ıen there are four beats in the bar ; then the tune *may* end on the *third* beat of the bar.

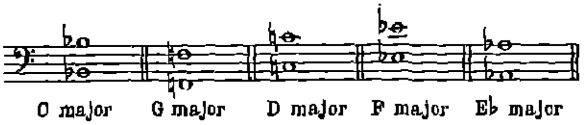
The rules of modulation in tunes written in the bass or F clef are exactly the same as for ose written in the treble or G clef. For example : 1. Tunes frequently modulate to the minant key by the use of the note *fe*. The following list shows the note *fe* in various keys, ing the *bass* clef.



2. Tunes frequently modulate to the relative minor key by the use of the note *se*, or the notes *ba, se, lah.* The following list shows the notes *ba, se, lah* in various keys, using the bass clef.



3. Tunes frequently modulate to the subdominant key by the use of the note *ta*. The following list shows the note *ta* in various keys, using the bass clef.

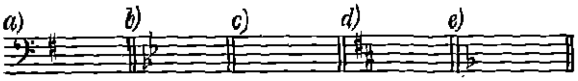


The rules of form when using the bass or F clef are exactly the same as when using the treble or G clef.

Exercises

A. Easy.

1. What minor keys are shown by the following key signatures? Name the relative major key in each case :—



2. Write the following minor scales, ascending and descending, in harmonic form, using the bass or F clef : A minor, D minor and B minor.
3. Write in minims, ascending and descending, the following minor scales in melodic form, using the bass or F clef. Add the tonic sol-fa name under each note : A minor, E minor and G minor.
4. Sing the following exercises at sight, using the tonic sol-fa names for the notes. (As in the previous lesson, this is practice in reading from the bass clef : the sounds you actually sing will be one octave higher.) Each exercise begins on *lah.*

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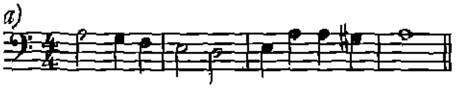
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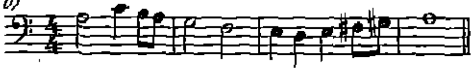
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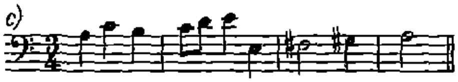
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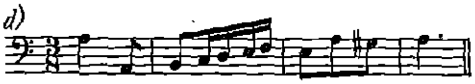
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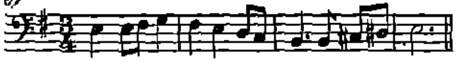
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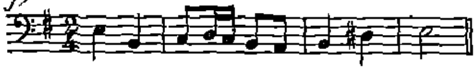
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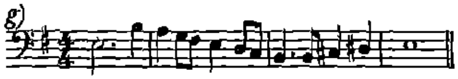
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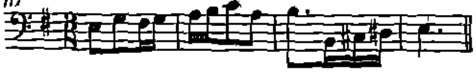

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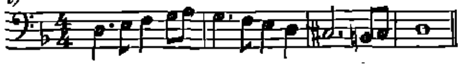

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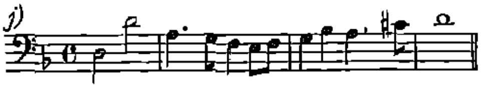

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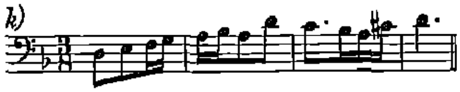

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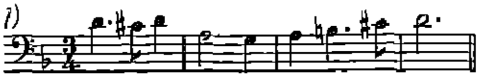

5. Write phrases in the bass clef, using the following rhythms :—

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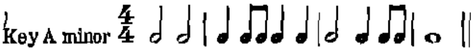

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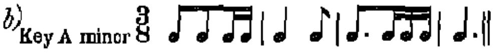

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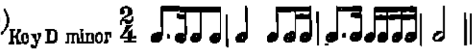

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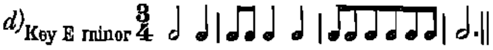

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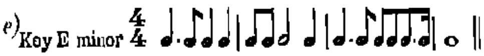

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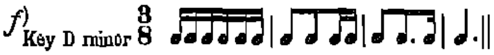
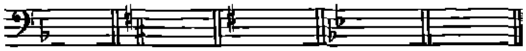


6. Re-write the phrases in Question 5, making each one modulate to the relative major key.

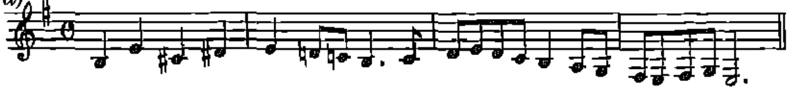
B. More Difficult.

1. Write the key signatures for the following keys, using the bass clef. Name the relative major key, in each case : E minor, G minor, B minor, and D minor.
2. Write the minor scales, ascending and descending, shown by these key signatures, in melodic form. Use the bass clef, and add the tonic sol-fa name under each note :—



Name each scale, and give the name of the relative major key.

3. Re-write the following tunes, using the bass or F clef, to sound at exactly the same pitch. Name the key of each :—

a)


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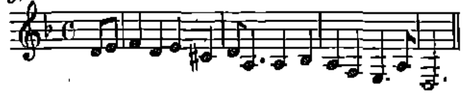

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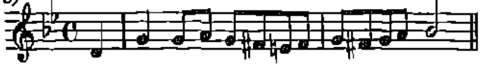
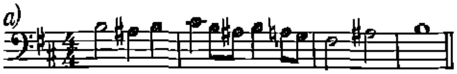


4. Sing the following exercises at sight, using the tonic sol-fa names for the notes. Each exercise begins on *lah* :—

a)


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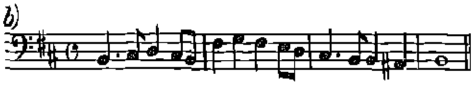

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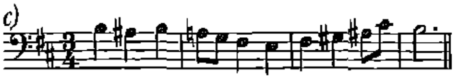

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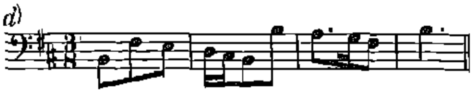

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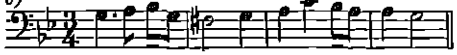

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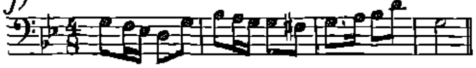

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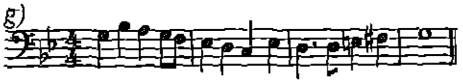

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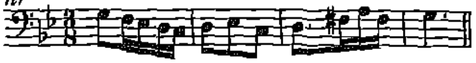
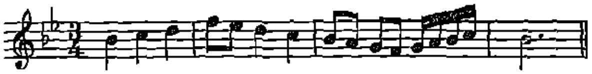


5. To the rhythms of the tunes given in Question 4, add new melodies. Use any major keys you please, and make each tune modulate to the relative minor key.
6. Write tunes, each 16 bars in length (four 4-bar phrases) in minor keys, according to the following plans: ABBA; AABA. Use the bass clef, and include such modulations as you think effective. Mark the phrases, and name the keys to which you modulate.

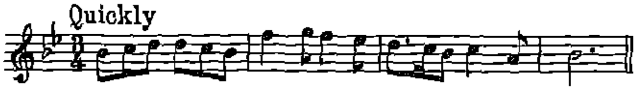
III. SIMPLE AND COMPOUND TIME.

Listen to this tune being played upon the pianoforte :—



The time signature is $\frac{3}{4}$. Therefore, you know that a crotchet is 1 beat, a quaver is ½ beat, and a semiquaver ¼ beat. In other words, each beat *may* be divided into halves and quarters. When a beat can be divided into halves and quarters, the time is called SIMPLE TIME.

Sometimes a composer writes music in which he wants to divide his beats differently—in thirds and sixths, as in this tune which is in the style of an Irish jig :—

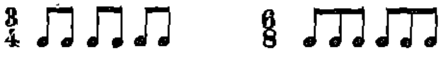


When a beat can be divided into thirds and sixths, the time is called COMPOUND TIME.

Now try to understand why it is called compound time. Listen to it being played a number of times, and gently tap the beats as you feel them; you will find there are *two beats* in each bar. Each beat will be, therefore, a dotted crotchet (♩.).

If a dotted crotchet equals 1 beat, what number could be used for the *lower* number of the time signature? Until now you have always used a 2 (i.e., ½ of a semibreve—𝅗𝅥), a 4 (i.e., ¼ of a semibreve ♩), or an 8 (i.e., ⅛ of a semibreve—♪). But a dotted crotchet is not an exact fraction of a semibreve and therefore there is *no number* that can be used to show that it is to equal one beat. So a time signature like $\frac{6}{8}$ is used, showing that there are six quavers in each bar, and that they are arranged so that three of them go to each beat.

Compare these two examples :—



In both cases there are six quavers: but in the first case they are grouped so that each quaver is a half beat, and in the second, so that each quaver is a third of a beat. Therefore, the first example is in simple time, and the second in compound time.

Here is an easy way of discovering whether a piece is in simple or compound time. If the *upper number* of the time signature is 1, 2, 3, or 4, the time is *simple*: if the upper number of the time signature is 6, 9, or 12, then the time is *compound*. (Occasionally other upper numbers are used, but they are extremely rare, there is no need to consider them here.) In compound time, the note taken as one beat is *always* a dotted note.

Here is one other thing to learn about time :—

When there are *two* beats in each bar, the time is DUPLE.
When there are *three* beats in each bar, the time is TRIPLE.
When there are *four* beats in each bar, the time is QUADRUPLE.

Simple Duple.	*Simple Triple.*	*Simple Quadruple.*
$\frac{2}{4}$ Each beat a ♩	$\frac{3}{8}$ Each beat a ♪	$\frac{4}{8}$ Each beat a ♪
$\frac{2}{2}$ Each beat a 𝅗𝅥	$\frac{3}{4}$ Each beat a ♩	$\frac{4}{4}$ (C) Each beat a ♩
$\frac{2}{1}$ Each beat a 𝅝	$\frac{3}{2}$ Each beat a 𝅗𝅥	$\frac{4}{2}$ Each beat a 𝅗𝅥
	$\frac{3}{1}$ Each beat a 𝅝	$\frac{4}{1}$ Each beat a 𝅝

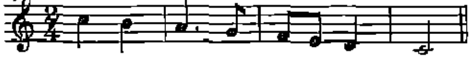
Compound Duple.	*Compound Triple.*	*Compound Quadruple.*
$\frac{6}{8}$ Each beat a ♩.	$\frac{9}{8}$ Each beat a ♩.	$\frac{12}{8}$ Each beat a ♩.
$\frac{6}{4}$ Each beat a 𝅗𝅥.	$\frac{9}{4}$ Each beat a 𝅗𝅥.	$\frac{12}{4}$ Each beat a 𝅗𝅥.
$\frac{6}{2}$ Each beat a 𝅝.	$\frac{9}{2}$ Each beat a 𝅝.	

Exercises.

A. Easy.

1. What is the difference between simple and compound time?
2. Which of the following times are simple, and which are compound?—
   $\frac{3}{4}, \frac{4}{8}, \frac{6}{8}, \frac{2}{2}, \frac{9}{8}, \frac{12}{8}, \frac{3}{2}$.
3. Which of the following times are duple, which are triple and which are quadruple?—
   $\frac{4}{4}, \frac{3}{8}, \frac{6}{8}, \frac{2}{4}, \frac{12}{8}, \frac{9}{4}, \frac{3}{2}$.
4. Give the full names to the following times (simple duple, etc.) :—
   $\frac{3}{8}, \frac{9}{8}, \frac{4}{4}, \frac{6}{4}, \frac{3}{2}, \frac{12}{8}, \frac{2}{4}$.
5. If the time signature is $\frac{6}{8}$ how long would there be on each of the following notes :—
   ♩., ♪, ♩, 𝅗𝅥.?
6. Sing the following tunes at sight, using the tonic sol-fa names for the notes :—

a)



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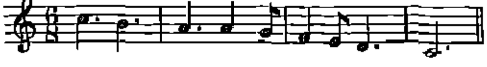

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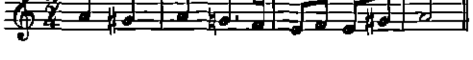

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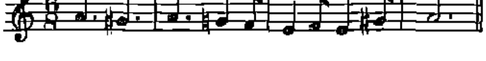

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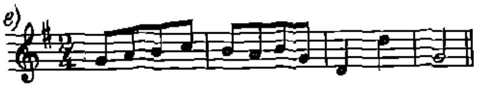

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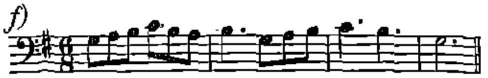

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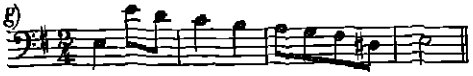

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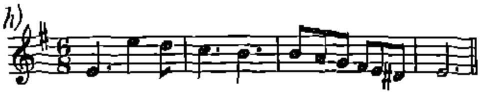

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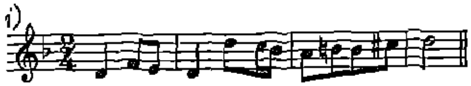

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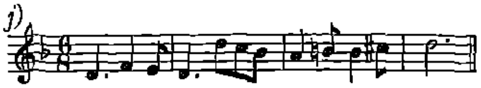

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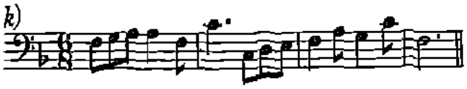

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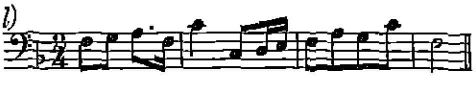
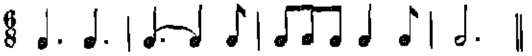
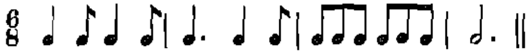
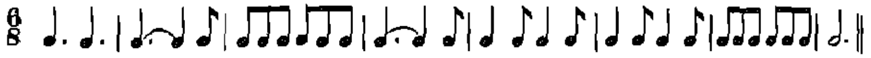
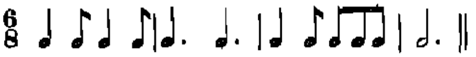


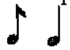
7. Write tunes in compound time using the following rhythms :—

a) Key C


b) Key E minor Bass clef


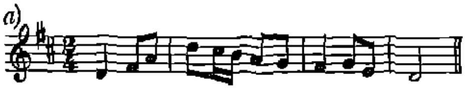
c) Key F


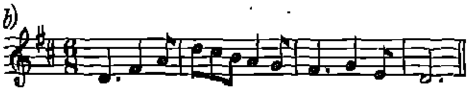
d) Key B minor


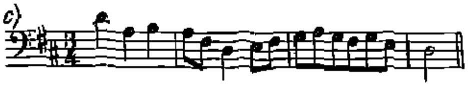
8. Write an original tune of eight bars (two 4-bar phrases), in $\frac{6}{8}$ time, making it modulate to the dominant key at the end of the first phrase. Use no note shorter than a quaver, and notice that it is not very satisfactory to divide your beat like this  : the crotchet should come *before* the quaver.

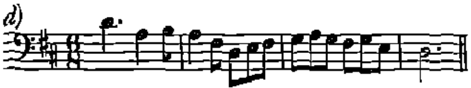
B. More Difficult.

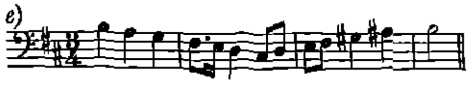
1. Suggest an easy method of telling whether the time is simple or compound.
2. Give examples of simple triple, compound duple, compound triple, and compound quadruple time.
3. What note would be equal to one beat in the following times ?— $\frac{3}{4}$, $\frac{6}{4}$, $\frac{9}{8}$, $\frac{2}{2}$, $\frac{6}{2}$, $\frac{12}{4}$, $\frac{3}{1}$, $\frac{12}{8}$.
4. Sing the following tunes at sight :—

a)


b)


c)


d)


e)


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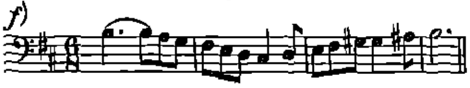
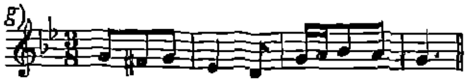
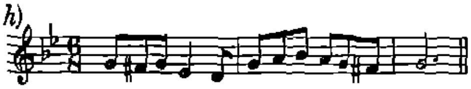
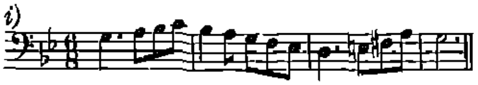


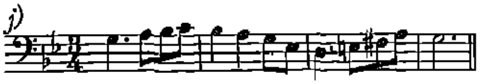
g)


h)


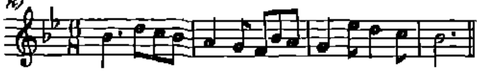
i)

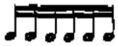
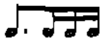


j)



k)



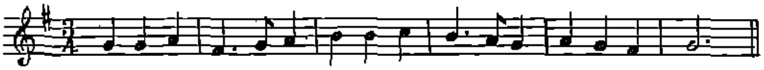
5. Write tunes in $\frac{6}{8}$ time, in the following keys: C, E minor, D minor, B♭ major. Each tune should be eight bars in length (two 4-bar phrases), and should contain at least one modulation. Make occasional use of the following groups of notes:  and .
6. Write a tune in ABA form, in $\frac{6}{8}$ time, containing the following modulations. Key D major:—

   1st phrase (A), in tonic key. 2nd phrase (B), to end in dominant key. 3rd phrase (B slightly altered), to end in relative minor key. 4th phrase (A, slightly altered if you wish), to end in tonic key.
7. Write a tune sixteen bars in length in ternary form, in compound time. Arrange the phrases and modulations as you think best.

IV. SETTING WORDS TO MUSIC—1

When a composer writes music, with or without words, he wishes to have *strong notes* and *weak notes*. If *all* notes were strong or *all* notes were weak, the effect would be unsatisfactory and monotonous.

Sing this tune, making all the notes very strong:—



The effect is certainly not musical or artistic.

Now sing that tune as you know it should be sung. Notice that there are some strong notes (accents) and some weak notes. Now sing it again, and notice that the accents occur regularly—one strong note followed by two weak notes, right through the tune.

How does the composer show which are the strong notes or accents? By the bar lines: he puts a bar line immediately before the accent, so that the first beat in each bar is always accented.

In DUPLE TIME the first beat is strong, and the second is weak.

In TRIPLE TIME the first beat is strong, and the second and third are weak.

In QUADRUPLE TIME the first beat is strong, the second beat is weak, the third beat is strong and the fourth beat is weak.

What is true of the notes in music is equally true of words in speech: some words are strong and some are weak. Say the following simple sentence: The dog is black. You notice at once that the words "dog" and "black" are strong (accents), and the other two words are weak.

The first thing you have to be careful of in setting words to music is that the *strong words* are put on the *strong beats* in the bar.

Now follow closely this method of setting words to music. Take these words :—

O God our help in ages past,
Our hope for years to come.

1st step. Mark the accents.

O Gód our hélp in áges pást,
Our hópe for yéars to cóme.

2nd step. Decide whether your time shall be duple, triple, or quadruple. In the given words, each accent is followed by *one* weak word ; therefore, it would be best to write in duple time or quadruple time, where each strong beat is followed by *one* weak beat. The time signature could be $\frac{2}{4}$, $\frac{2}{2}$, $\frac{4}{4}$, or $\frac{4}{2}$.

3rd step. Arrange the words in bars. See that the *strong words* come at the *beginning* of the bar :—

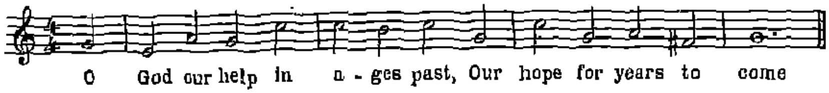
O | Gód our | hélp in | áges | pást,
Our | hópe for | yéars to | cóme. ||

Or, if you decide to write in quadruple time :—

O | Gód our hélp in | áges pást,
Our | hópe for yéars to | cóme. ||

Remember that any tune written in duple time could be written equally well in quadruple time. Notice that in the words you are now considering, the word " O " is weak and must therefore come on the last beat of the bar ; and the second word " our ", although beginning a new line in the poem, will come in the same bar as the word " past ".

4th step. Write the tune, giving *one* note for each word or syllable :—



When the second phrase is added, you have an 8-bar tune, consisting of two equal phrases—that is in the form in which you have already written many tunes.

Now apply this same method to setting words to music in triple time.

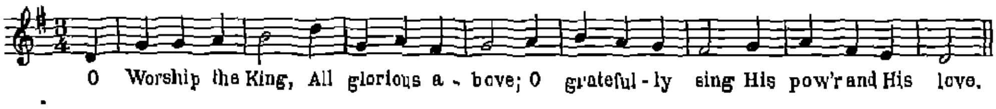
1st step. O wórship the King all glórious abóve ;
O grátefully sing His pówer and His lóve.

2nd step. In nearly every case the strong word is followed by two weak words ; therefore it would be best to write in triple time, where each strong beat is followed by two weak beats. The time signature could be $\frac{3}{8}$, $\frac{3}{4}$ or $\frac{3}{2}$.

3rd step. O | wórship the | King all | glórious a| bóve ;
O | grátefully | sing His | pówer and His | lóve.

Notice the bar containing the words " King all." These *two words* have to be set to *three beats* of music. As the word " King " is more important than the word " all ", it must be set to a note which will last for two beats ; the word " all " will be set to a one-beat note in the usual way.

4th step


O Worship the King, All glorious a - bove; O grateful - ly sing His pow'r and His love.

(The tune has been simplified in the last but one bar.)

Exercises

A. Easy.

1. Prepare the following words for setting to music: i.e., mark the accented words, and arrange the words in bars. Add a suitable time signature in each case:—

(*a*) Little bird with bosom red
Welcome to my humble shed;
Courtly dames of high degree
Have no room for thee and me.

(*b*) The Hart, he loves the high wood,
  The Hare, he loves the hill;
The Knight, he loves his bright sword;
  The Lady loves her will.

(*c*) Three jolly gentlemen, in coats of red,
Rode their horses up to bed.
Three jolly gentlemen snored till morn,
Their horses champing the golden corn.

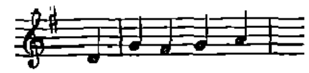
(*d*) In Han's old mill his three black cats
Watch the bins for the thieving rats.
Whisker and claw, they crouch in the night,
Their five eyes smouldering green and bright.

(*e*) If all these young men were as hares on the mountains,
Then all those pretty maidens will get guns, go a-hunting
With ri-fol-de-dee; cal-al-de-day, ri-fol-de-dee.

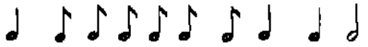
2. Set to music the words given in Question 1, following carefully the suggestions given below. Use only one note to each word or syllable.

(*a*) *Little bird, etc.* Set the first two lines only, using chiefly crotchets. Write in $\frac{2}{4}$ time, so that the tune will consist of two 4-bar phrases.

(*b*) *The Hart, etc.* Set the whole verse. Write in $\frac{4}{4}$ time, so that the tune will consist of two 4-bar phrases. Start on the last crotchet in the bar like this:—



(*c*) *Three jolly gentlemen, etc.* Set the whole verse. The rhythm of the first line is:
Three jolly gentlemen in coats of red.



Now complete the tune, which should consist of two 4-bar phrases.

(*d*) *In Han's old mill, etc.* Set the whole verse in $\frac{4}{4}$ time. Most of the notes should be crotchets, but the word "rats" must have a minim. The tune should consist of two 4-bar phrases.

(*e*) *If all these young men, etc.* Set the first two lines only, in $\frac{3}{4}$ time. Many of the notes will be crotchets, but in several places you will have to be very careful about the values of the notes. The tune should consist of two 4-bar phrases.

B. More Difficult.

Write tunes to the following words, using one note to each word or syllable. Follow the steps as set out in the lesson :—

(*a*) To Katherine Docks we'll bid adieu,
To saucy Poll and lovely Sue ;
Our anchor's weighed, our sail's unfurled,
We're bound to plough the watery world.

Write in $\frac{4}{4}$ time. Each line of the words should fit to one phrase of the music. Modulation may be included.

(*b*) Near London town there grows a flow'r
The fairest to be seen,
It groweth by a pleasant bow'r,
Nearby a pleasant green.

Write in $\frac{4}{4}$ time. This tune will consist of two 4-bar phrases.

(*c*) Where are you going to, my pretty little dear,
With your red rosie cheeks and your coal black hair ?
I'm going a-milking, kind sir, she answered me,
And it's dabbling in the dew makes the milkmaid fair.

Write in $\frac{4}{4}$ time, using many quavers.

(*d*) A fox jumped up on a moonlight night,
The stars were shining and all things light ;
" Oh, oh," said the fox, " it's a very fine night
For me to go through the town, heigho ! "

Write in $\frac{3}{4}$ time. Use chiefly crotchets, so that the tune consists of four 4-bar phrases.

(*e*) Grasshopper Green is a comical chap ;
He lives on the best of fare
Bright little trousers, jacket and cap,
These are his summer wear.

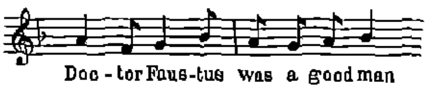
Write in $\frac{6}{8}$ time. The word " fare " should be in a bar by itself. The tune should consist of two 4-bar phrases.

(*f*) We be the King's men, hale and hearty,
Marching to meet one Buonaparty ;
If he won't sail, lest the wind should blow,
We shall have marched for nothing, O.

Write in quadruple time. The tune should consist of two 4-bar phrases, and contain chiefly crotchets.

(*g*) Doctor Faustus was a good man,
He whipt his scholars now and then ;
Those he whipt, he made them dance
Out of England into France.

Write in $\frac{6}{8}$ time, beginning as follows :—



V. SETTING WORDS TO MUSIC—2

In the last lesson you learnt how to set words to simple music—one note to each word or syllable. Now that you are able to do that, you will want to set words to more elaborate tunes.

The method, in the early stages, is exactly the same as for simple tunes. Take these words :—

My love's an arbutus by the borders of Lene,
So slender and shapely in her girdle of green.

1*st Step.* Mark the accents :—

My lóve's an arbútus by the bórders of Léne,
So slénder and shápely in her gírdle of gréen.

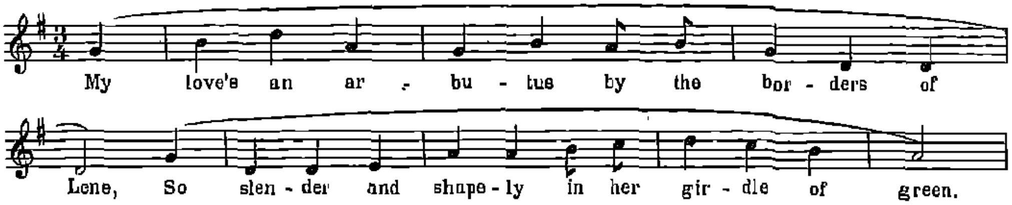
2*nd step.* Decide whether your time shall be duple, triple or quadruple. Each accent is generally followed by *two* weak words ; therefore the time should be triple. A suitable time signature would be $\frac{3}{8}$, $\frac{3}{4}$ or $\frac{3}{2}$.

3*rd step.* Arrange the words in bars :—

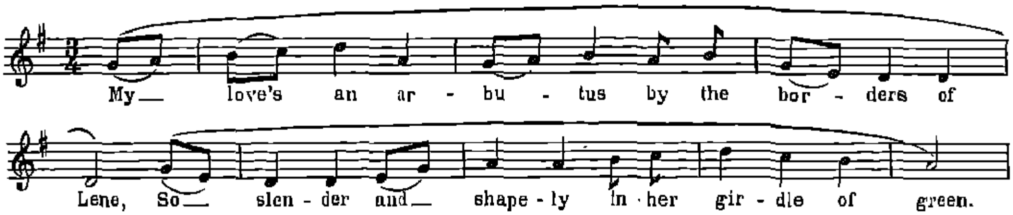
My | lóve's an ar| bútus by the | bórders of | Léne,
So | slénder and | shápely in her | gírdle of | gréen.

Notice bars 2 and 6. There are more than three words or syllables here : therefore, some quick notes will have to be used to get them in. Also bar 4, " Lene, so ", has only two words ; so the notes will have to be spread out.

4*th step.* Write a simple tune—one note to each word or syllable.


My love's an ar - bu - tus by the bor - ders of
Lene, So slen - der and shape - ly in her gir - dle of green.

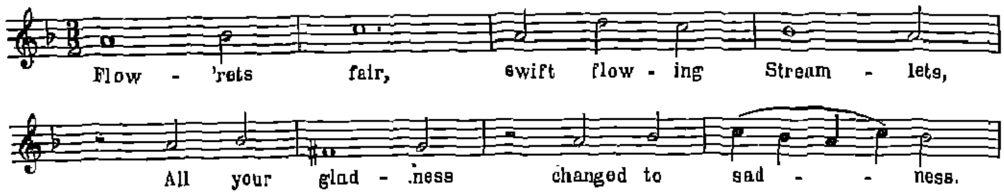
5*th step.* Now that you have the outline of the tune, and you know that *all the words are in the correct places in the bar,* you may add any little improvements to the tune. Do not change the position of the words in the bar.


My— love's an ar - bu - tus by the bor - ders of
Lene, So— slen - der and— shape - ly in · her gir - dle of green.

It frequently happens that words may be set to music in either duple or triple time. For instance these words might be set in duple or triple time :—

Flów'rets | fáir, | swift flowing | stréamlets
All your | gládness | chánged to | sádness.

But Handel sets them in triple time, no doubt to get a tune which suggests the style of the "Flowing streamlets."


Flow - 'rets fair, swift flow - ing Stream - lets,
All your glad - ness changed to sad - - ness.

In deciding such a point, you must use your imagination. Say the words over several times, until you discover what is the most natural rhythm, and decide from that. Also, if you can get a better shaped tune by using duple time instead of triple time, or vice versa, then choose that; your tune when completed should be in much the same form and shape as the many tunes you wrote before you attempted to set words to music.

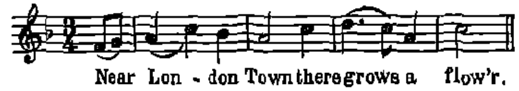
Exercises

A. Easy.

Set the following words to music. You need not write one note for each word or syllable, but instead, make your tune a little more elaborate :—

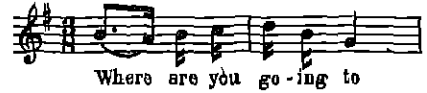
(*a*) Near London town there grows a flow'r,
The fairest to be seen.
It groweth by a pleasant bow'r,
Near by a pleasant green.

Begin as follows :—



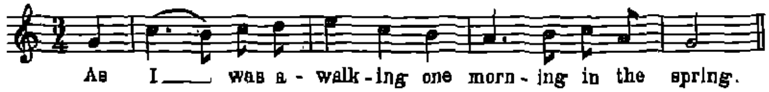
(*b*) Where are you going to, my pretty little dear,
With your red rosie cheeks and your coal black hair?
I'm going a-milking, kind sir, she answered me,
And it's dabbling in the dew makes the milkmaid fair.

Begin as follows :—



(*c*) As I was a-walking one morning in the spring,
I met a pretty damsel, so sweetly she did sing;
And as we were a-walking, unto me she this did say:
"There is no life like the ploughboy's all in the month of May."

Begin as follows :—



B. More Difficult.

Any of the sets of words given in the exercises to Lesson IV may be set to more elaborate music. Here are some additional words which may be used :—

(*a*) Charley Warley had a cow,
Black and white about the brow;
Open the gate and let her through,
Charley Warley's old cow.

(*b*) Old Meg she was a gipsy, and lived upon the moors ;
Her bed it was the brown heath turf, and her house was out of doors.
Her apples were swart blackberries, her currants pods o' broom ;
Her wine was dew of the wild white rose, her book a churchyard tomb.

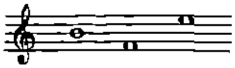
The tune for this should be 16 bars in length, in ternary form. It should contain suitable modulations.

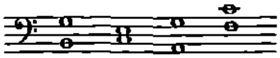
(*c*) Not a drum was heard, not a funeral note,
As his corpse to the ramparts we hurried :
Not a soldier discharged his farewell shot
O'er the grave where our hero we buried.

The tune for this should be in a minor key and in quadruple time.

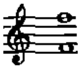
(*d*) O listen, listen, ladies gay !
No haughty feat of arms I tell ;
Soft is the note, and sad the lay,
That mourns the lovely Rosabelle.

VI. INTERVALS

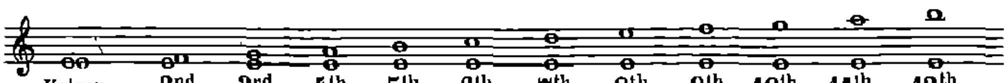
You have probably heard the term *pitch* applied to a note : it describes the note as being high or low. For instance, in this illustration,  the first note is higher in pitch than the second, and the third note is higher in pitch than either of the others.

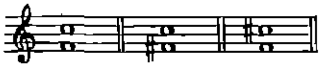
Two notes, of different pitch, sounded together make an interval. Here are a number of intervals :— 

Learn this definition : An interval is the difference in pitch between two notes.

All intervals have names. This interval,  is called an *octave*, because there are *eight* degrees of the stave between the two notes—F, G, A, B, C, D, E, F. This interval, is called a *fifth*, because there are *five* degrees of the stave between the two notes—C, D, E, F, G.

The following illustration shows the principal intervals with their names :—



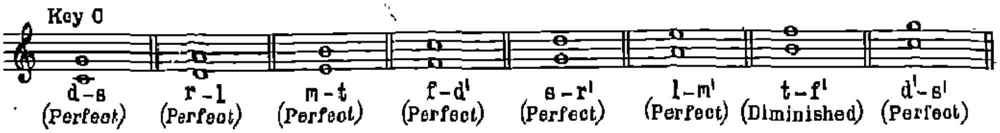
Examine the following intervals :— 

They are all fifths. Listen to them being played upon the pianoforte, and you will hear that they all produce different effects.

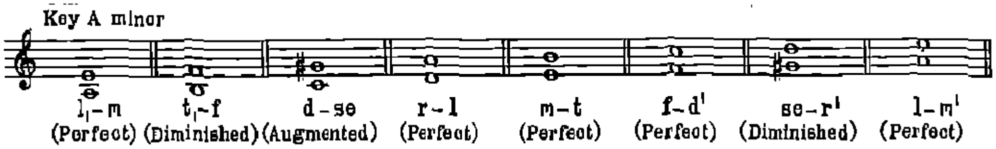
The first one is called a perfect 5th.

The second is called a diminished 5th, because it is one semitone *smaller* than a perfect 5th.

The third is called an augmented 5th because it is one semitone *larger* than a perfect 5th. Now examine the 5ths that are to be found in a major scale.

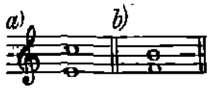


They are all perfect, except the one on the 7th note (leading note) which is a diminished 5th. The following illustration shows the 5ths in a minor scale (harmonic form).



The one on the 3rd note (mediant) is augmented: those on the 2nd note (supertonic) and the 7th note (leading note) are diminished, and the others are perfect.

Listen to the following two intervals being played upon the pianoforte :—



The first one gives the effect of rest: the second gives you the feeling that another interval should follow it.

An interval which gives the effect of rest, or in other words, sounds finished and complete, is called a CONSONANT INTERVAL.

An interval which does not sound finished, but which seems to require another interval to follow it, is called a DISSONANT INTERVAL.

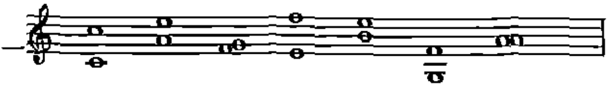
Here is a list of consonant and dissonant intervals :—

CONSONANT intervals—unison, octave, 3rds, perfect 5ths, 6ths.
DISSONANT intervals—2nds, 4ths, diminished 5ths, augmented 5ths, and 7ths.

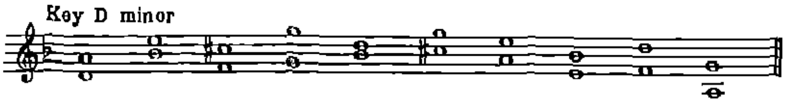
Exercises

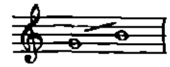
A. Easy.

1. What is an interval?
2. Name the following intervals :—



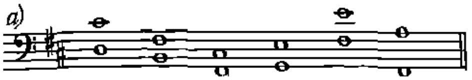
3. In the key of G, write the following intervals: 6th, 3rd, unison, perfect 5th, 7th.
4. Name the following intervals, and mark the consonant intervals with C, and the dissonant intervals with D. (In the case of 5ths give the *full name.*)

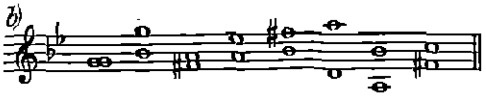


5. How many kinds of 5ths are there? Give examples of each in the keys of A minor, D major and G minor.
6. Listen to intervals played upon the pianoforte, thus  ; one note *after* the other, and name them and say which are consonant and which are dissonant.

B. More Difficult.

1. Explain what is meant by " consonant " and " dissonant." Illustrate your answer.
2. Write out a complete list of consonant intervals. Illustrate your answer by giving examples in the keys of G major, and D minor.
3. Write out a complete list of dissonant intervals. Illustrate your answer by giving examples in the keys of F major and B minor.
4. Name the following intervals, and say whether each one is consonant or dissonant. (In the case of 5ths, give the *full name*) :—



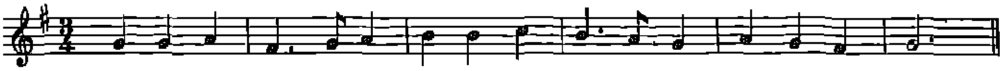


5. In the key of B minor, using the bass clef, write examples of the following intervals : 9th, augmented 5th, 7th, diminished 5th, 3rd.
6. How many kinds of 5ths are found in a major key ? Give examples in the key of B♭.
7. How many kinds of 5ths are found in a minor key ? Give examples in the keys of E minor, and D minor.
8. Write out the scale of B minor, harmonic form, using the bass clef. Above each note write a note which is a 5th higher. Under each interval write its *full name*, and also put a C or D to show whether it is consonant or dissonant.
9. Upon which degrees of a minor scale, harmonic form, can you write (*a*) diminished 5ths, (*b*) perfect 5ths, and (*c*) augmented 5ths ? Give examples in the key of G minor, using the bass clef.
10. Listen to intervals played upon the pianoforte, *both notes together*. Name them, and say which are consonant and which are dissonant.

VII. SIMPLE PART-WRITING

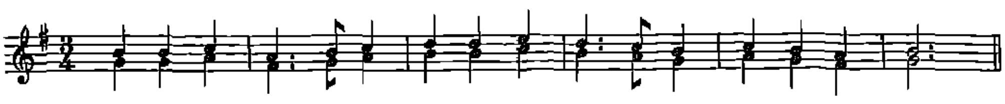
Now that you have learnt something about intervals, you should be able to begin writing two-part tunes.

Imagine that you had to add a treble part, like a descant, above this phrase.



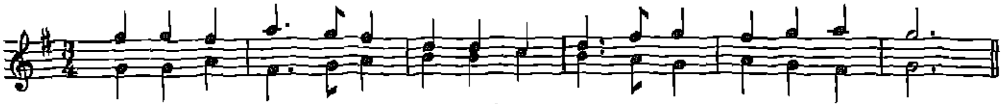
The following rules will be helpful :—

1. At present, write note against note : i.e., where there is a ♩ in the given tune, you write a ♩ in your part ; and where there is a ♪ in the given tune, you write a ♪, etc.
2. Be careful how your tune moves in relation to the given tune. There are three ways in which it can move :—
   - (*a*) *Similar motion*. That is to say, when the given tune moves *up*, your tune moves *up* also ; when it moves *down*, yours moves *down* also. If the two tunes moved like that *all* the time, the effect would be dull and monotonous.

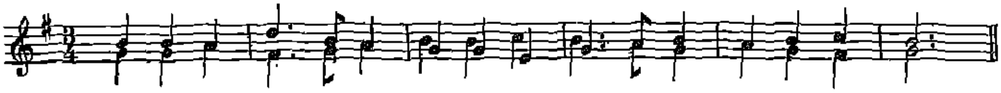


A poor example of two-part writing.

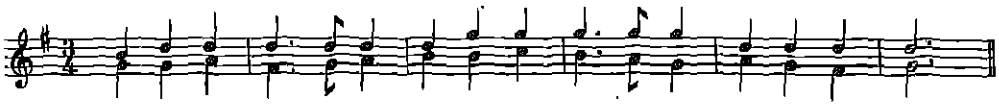
(*b*) *Contrary motion.* That is to say, moving in the opposite direction to the given tune. If you did this all the time, you would find that your tune would at times be too high to sing, and that occasionally it would have to cross the given tune.



or



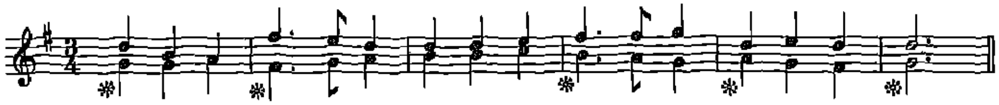
(*c*) *Oblique motion.* That is to say, one part remains still while the other moves on.



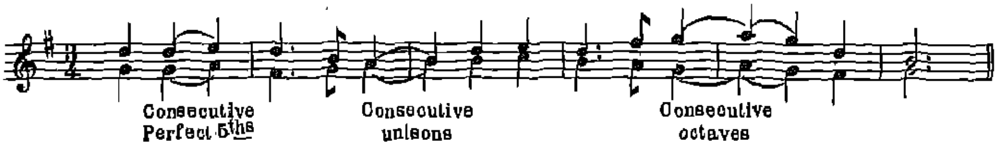
In this case, the added tune can hardly be called a tune at all, because there are far too many repeated notes in it.

To get an effective added tune, you must make good use of *all* these three kinds of movement, similar motion, contrary motion, and oblique motion.

3. On the strong beats, especially the first beat in the bar, it is generally best to use 3rds and 6ths. The other intervals may be used there sometimes, but you must avoid making the effect bare and hard, like this :—

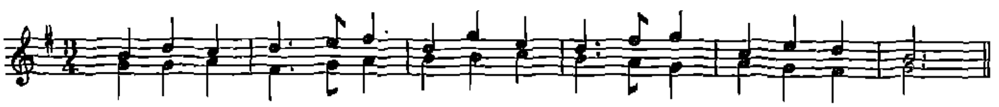


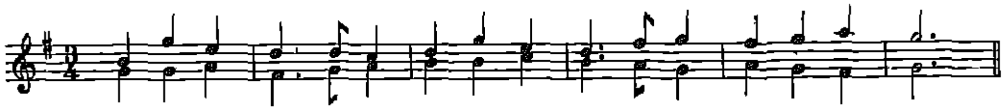
4. Do not use the 2nd or the 7th ; use the 4th only very rarely.
5. Begin and end on a note of the *doh* chord. (If a tune begins on the *last* note of a bar, you need not always begin on a note of the *doh* chord.)
6. Never have two perfect 5ths and two octaves or two unisons (consecutives, as they are called) immediately following each other, if both parts are moving.



7. Never have the leading note (7th note of the scale) in the two parts at the same time ; and never go from *fah* up to *te* because it is very awkward and unpleasant to sing.

Here are two tunes which may be added to the given tune. Take each of the seven rules separately, and see how carefully they have been followed :—

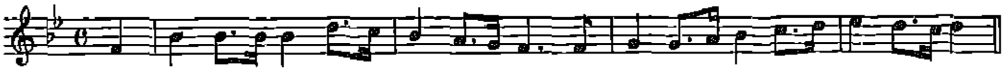




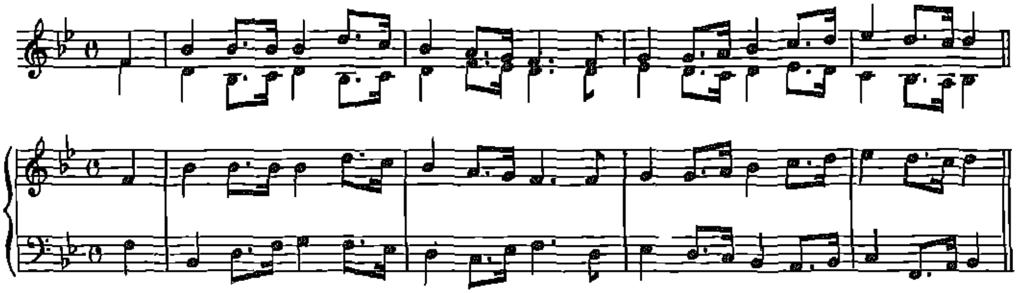
N.B.—When two parts are written on the same stave, the stems of the notes of the top part are always turned *upwards*, and the stems of the notes of the lower part are always turned *downwards*.

The rules for adding a tune *below* a given tune, are exactly the same.

For example, add a tune below the following :—



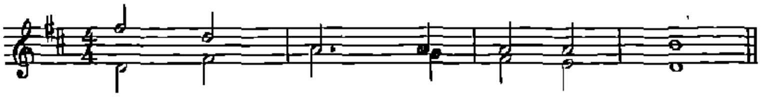
Either of these two solutions is quite satisfactory.



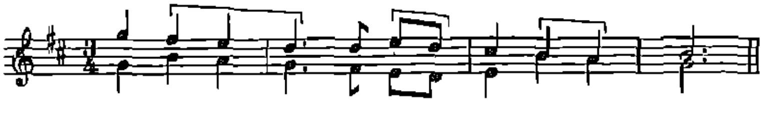
Exercises

A. Easy.

1. What is meant by (*a*) similar motion, (*b*) contrary motion, (*c*) oblique motion? Give short examples of each.
2. What are the best intervals to have on the strong beats when writing in two parts? Give examples in the keys of G major, and B minor, using the bass clef.
3. Point out any faults you notice in this piece of two-part writing, which is in the key of D major :—

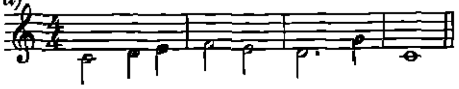


4. What consecutive intervals are not allowed in part writing? Give examples in the key of G minor.
5. What is wrong in the places marked ┌──┐?

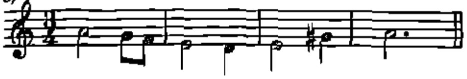


6. Add a part *above* the given part in each of these examples. Write your part *note against* in every case :—

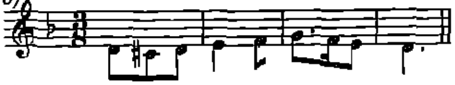
a)



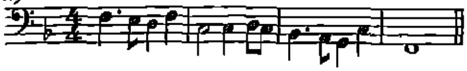
b)



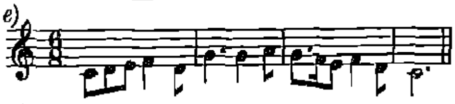
c)



d)



e)



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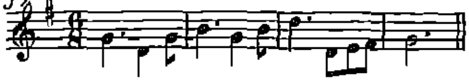
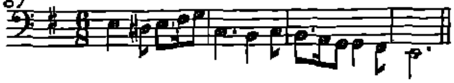
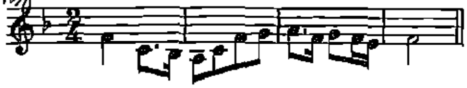


g)



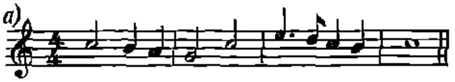
h)



7. Write a 4-bar phrase in each of the following keys, using no note shorter than one third of a beat : C major, F major, E minor, G minor, and D major. At least two of the phrases should be in compound time. Above each of these phrases, add a second part, following carefully the rules given in the lesson above.

8. Add a second part *below* these tunes. You may write the two parts on the same stave, or on two staves, using the bass clef for your added part.

a)



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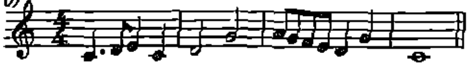

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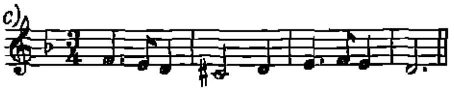

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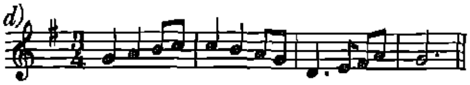

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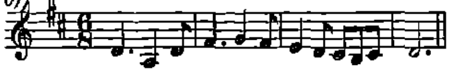

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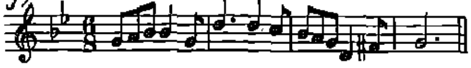
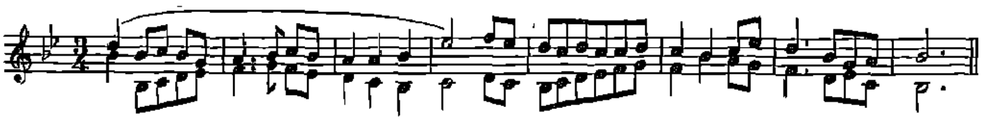


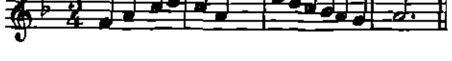
B. More Difficult.

1. What are the three possible kinds of movement when writing in two parts ? Write short phrases in the key of E minor to illustrate each kind of movement you mention.
2. Point out any faults you notice in the following piece of two-part writing. Improve it, but alter as few notes as possible.



3. Add a second part *below* each of these tunes. You may write the two parts on the same stave, or on two staves, using the bass clef for your added part.

a)



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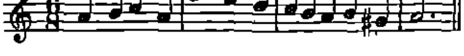

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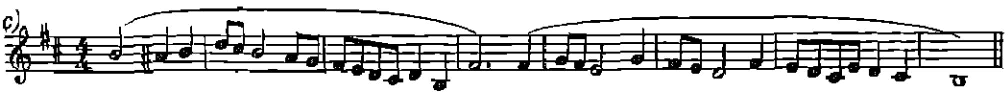

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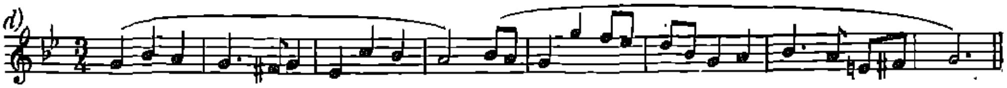


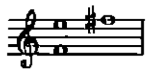
4. Write a tune eight bars in length (two 4-bar phrases), which modulates to the dominant at the end of the first phrase, and returns to the tonic at the end of the second, but use no note less than half a beat in length. Then (*a*) add a descant above it, (*b*) a second part below it. (Two separate examples required.)

For further exercises, use any of the tunes contained in the exercises to other lessons in the book.

VIII. TRIADS

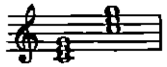
Two notes sounded together produce an INTERVAL.

Three notes sounded together produce a CHORD.

It must not be thought, however, that *any* three notes sounded together produce a satisfactory chord. For example:  these three notes do not form a chord which is generally used in music; the effect is not at all pleasing.

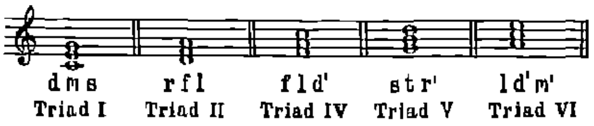
Now study the simplest chord of all.

Let one section of the class sing *doh*; another section sing *me*; and a third section sing *soh*. If this is not possible, play those same three notes together on the pianoforte. That is a very pleasing effect.

The chord you have just heard consists of a note (*doh*), with a note a third above it (*me*), and another note a fifth above it (*soh*). That is called a TRIAD. Because it comes on the 1st note of the scale, it may be called the TONIC TRIAD or TRIAD I. 

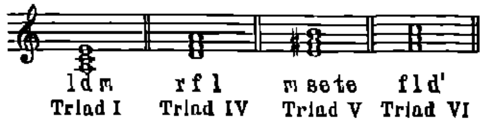
Learn this definition: A triad is a chord of three notes, consisting of a note with the third and fifth above it.

Here are some other triads in the scale of C major:—



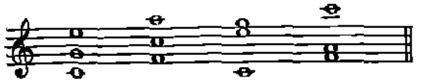
The triads are numbered according to the degree of the scale on which they are written. Thus the triad on the *fourth* degree is called Triad IV.

Here are the corresponding triads in the key of A minor, omitting Triad II because it needs special treatment:—

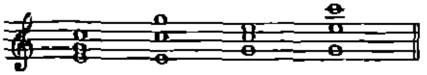


Before going further with this lesson, work exercises 1—4 in each grade.

You have learnt that a triad is a chord of three notes, consisting of a note, with the third and fifth above it. So far, *all these triads have been in what is called Root Position*, that is to say, the note from which the triad is built up, called the Root, has always been at the bottom (or, as we say, in the bass). These triads are still root position, because the root is still in the bass, although the order of the other notes has been changed :—

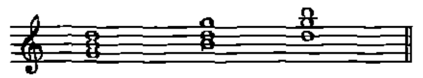


If one of the other notes is put at the bottom, then the triad has been ***inverted***. For instance, this is still Triad I, but it has been inverted (the same notes, but in a different order) :—



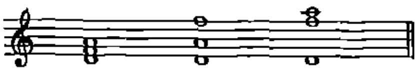
In a triad there are *two* notes in addition to the root. It is possible to put each of these notes at the bottom of the chord. Therefore, each triad may be inverted in *two* different ways : or, as it is usually put, ***each triad has two inversions.***

For example :—

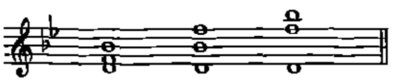


This further illustration should make the matter of the root position and the inversions of triads perfectly clear.

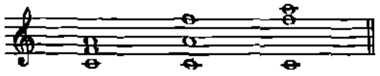
Root Position - - - - the root of the triad is in the bass.



First Inversion - - - the third of the triad is in the bass.



Second Inversion - - - the fifth of the triad is in the bass.

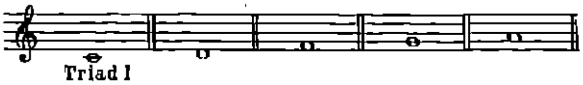


There are many other chords used in music ; but the triads and their inversions you have learnt about in this lesson are the basis from which all the other chords are built up. These triads are sufficient for writing many simple pieces of music. The accompaniments to most folk songs and to a great number of national songs are based on these simple chords. Now that you have learnt something about triads, you should be able to follow simple pieces and accompaniments, and also hymn tunes, with more intelligence and understanding.

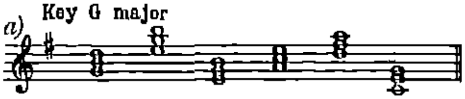
Exercises

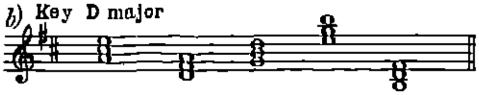
A. Easy.

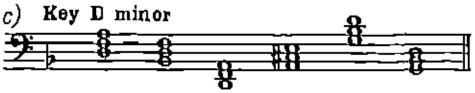
1. Listen to triads and inversions being played upon the pianoforte. Name them.
2. Write a triad on each of the following notes in the key of C; number them according to the degree of the scale on which they occur :—



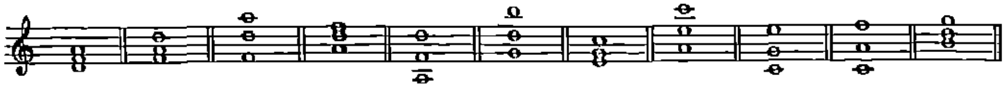
3. Write triads on the 1st, 2nd, 4th, 5th, and 6th notes of the following scales: G, B♭, F and D.
4. Write triads on the 1st, 4th, 5th, and 6th notes of the following scales: A minor, E minor and D minor.
5. Number the following triads :


a) Key G major


b) Key D major


c) Key D minor

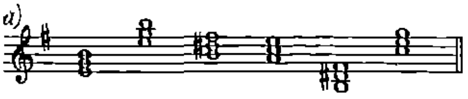
6. How do you know when a triad is inverted? How many inversions has a triad? Give examples in a major key, and a minor key, using the bass clef.
7. Mark those of the following triads which are inverted. Use an " a " for those in first inversion and a " b " for those in second inversion :—

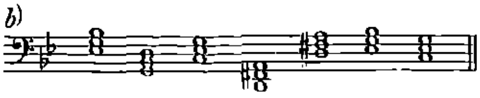


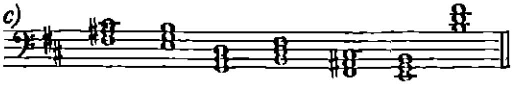
8. In the key of D major, write the following triads ; (the letters " a " and " b " are used exactly as in Question 7 : Ia, IVb, VI, II, VIb, IIa, Va, I.
9. In the key of E minor, write the following triads : I, IV, V, VIa, Vb, IVa, IVb, Ib.

B. More Difficult.

1. The tonic triad will be played upon the pianoforte. Other triads in that key will be played, all in root position. Name them.
2. In the key of B minor, write the following triads, all in root position: I, IV, VI, V, I.
3. In the key of G minor, write two examples of each of the following triads, all in root position. Use the bass clef: V, IV, VI, I.
4. Number the following triads, all of which are in minor keys. Name the key in each case :—

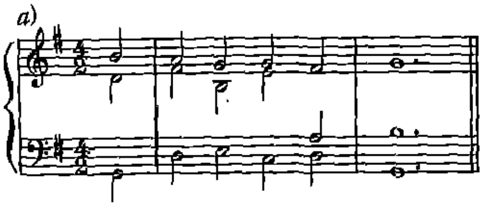

a)


b)


c)

5. What do you understand by the following terms : pitch, interval, triad ?
6. How many positions has a triad ? Name them, and say how you can decide in which of these positions a triad is written. Illustrate your answer by giving examples in both major and minor keys. Use the bass clef.
7. Write the following triads in the key of B♭ major. (The letter " a " means first inversion, and the letter " b " means second inversion ; when there is no letter, write in root position) : Ia, VIb, Va, IVb, II, VI, IIa, V, I.
8. *Write the following triads in the key of B minor :* Va, Ib, VI, IVa, Vb, Ia, IV, V, I.
9. Number the triads in the following tunes. Use " a " and " b " to denote first and second inversions :—

a)



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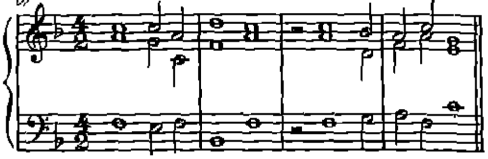

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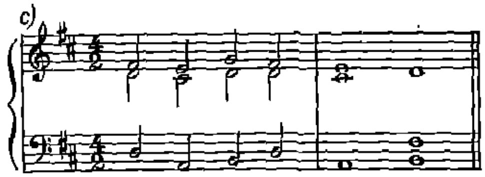

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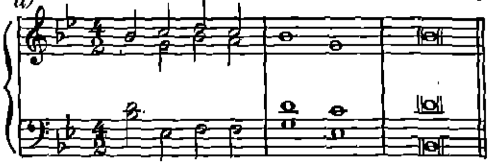
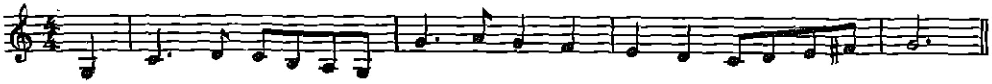


ADDITIONAL EXERCISES

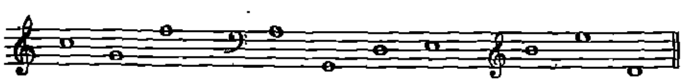
I. The Bass or F Clef—1

1. Write the scales of G major, D major and B♭ major, using the bass clef. Add *no* key signature, but put in the sharps and flats as they are needed.
2. (*a*) Transpose this tune down into the key of G major, using the bass clef. Add *no* key signature, but put in the sharps and flats as they are needed :—



(*b*) To what key does it modulate ?

3. (*a*) Name the following notes :—



(*b*) Re-write them, using the treble or G clef, to sound *one octave higher.*

4. Write the following scales, descending, in the bass or F clef. Use no key signature, but add the sharps and flats as required. Mark the semitones : F, D, B♭ and G.
5. Write an 8-bar tune in the key of D major. (The first phrase should end in the dominant key.) Use the bass or F clef.
6. Write an 8-bar tune in the key of F major, containing modulations to the dominant and subdominant keys. Use the bass or F clef.

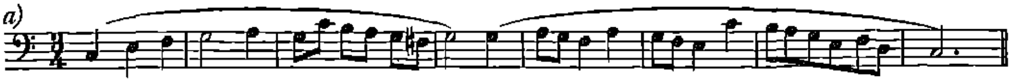
7. Write a tune in the key of G major, according to the following plan, AABA (ternary form). Use the bass or F clef :—
   1st phrase (A) in tonic key. 2nd phrase (A) modified to end in dominant key. 3rd phrase (B) to end in subdominant key. 4th phrase (A) modified to end in tonic key.

8. Write an 8-bar tune in binary form. Use the bass or F clef.

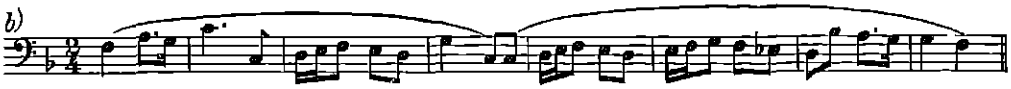
9. Write a 16-bar tune in ternary form, ABBA. Use the bass or F clef, and include any modulations you think suitable. Mark the phrases, and name the keys to which you modulate.

10. Sing the following tunes at sight :—

a)



b)



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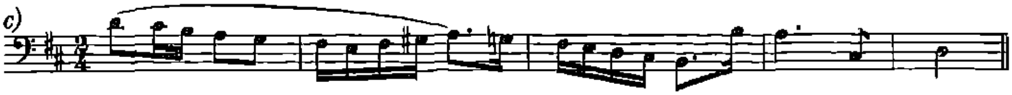
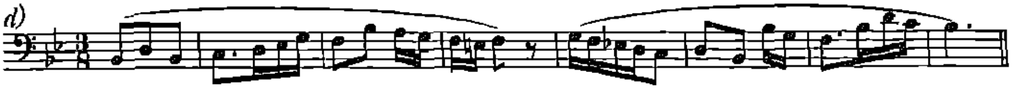
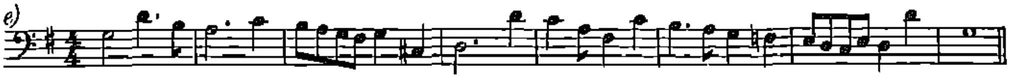


d)



e)



II. The Bass or F Clef—2

1. Write the following minor scales, ascending and descending, in the harmonic form, using the bass or F clef. Add no key signatures but put in the sharps and flats as required : A minor, E minor, G minor.

2. Write the following minor scales, ascending and descending, in the melodic form, using the bass or F clef. Add no key signature, but put in the sharps and flats as required : A minor, D minor, B minor.

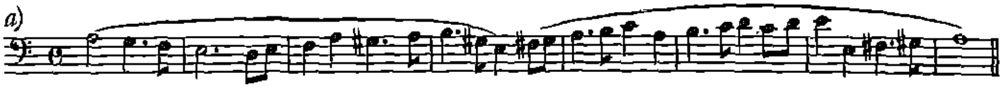
3. Transpose the tunes given in Question 4 of the *More Difficult* exercises as follows :—
   (*a*) Down into G minor. (*b*) Up into D minor. (*c*) Up into E minor.
   (*d*) Up into D minor. (*e*) Down into A minor. (*f*) Down into E minor.
   (*g*) Down into B minor. (*h*) Up into D minor.
   Add the new key signatures.

4. (*a*) Write on a stave, using the bass or F clef, the note that would enable you to modulate between the following keys :—
   (1) C major to G major. (2) C major to A minor. (3) C major to F major.
   (4) G major to D major. (5) B♭ major to G minor. (6) D major to A major.

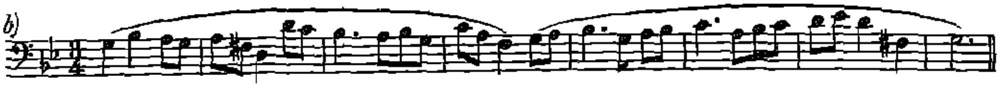
   (*b*) Write a 4-bar phrase, showing in each case how the modulation can be made.

5. Write tunes in binary form, as follows. Use the bass or F clef :—
   - (*a*) Key E minor $\frac{3}{4}$ time.
   - (*b*) Key G minor $\frac{2}{2}$ time.
   - (*c*) Key B minor $\frac{4}{8}$ time.
   - (*d*) Key D minor $\frac{3}{8}$ time.
6. Write tunes in ternary form, as follows. Use the bass or F clef :—
   - (*a*) AABA. Key A minor $\frac{2}{4}$ time.
   - (*b*) ABBA. Key G minor $\frac{3}{8}$ time.
7. Sing the following tunes at sight :—

a)



b)



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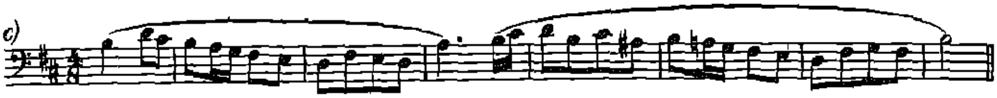
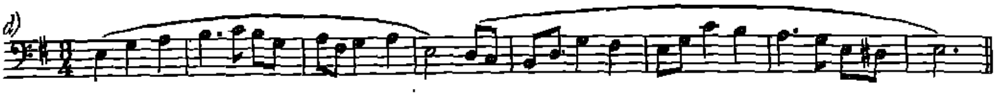
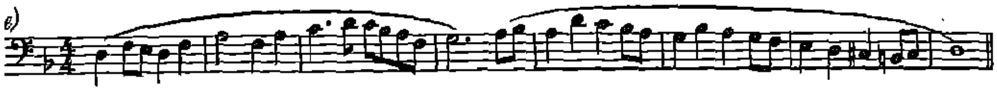


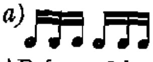
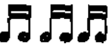
d)

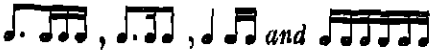


e)



III. Simple and Compound Time

1. What time signatures could be used to make each of the following notes equal to one beat ?— *a)* 𝅗𝅥 *b)* ♩. *c)* ♪ *d)* 𝅗𝅥. *e)* ♪. In addition to the time signature, describe the time fully in words. (Compound duple, etc.)
2. (*a*) Give the values of the following notes in $\frac{9}{4}$ time : 𝅗𝅥. , 𝅗𝅥 , 𝅝. , ♩
   (*b*) Give the values of the following notes in $\frac{6}{16}$ time : ♪. , ♩. , 𝅘𝅥𝅯. , ♪
3. *Add time signatures to each of the following groups of notes, so that each group exactly fills one bar :— a)*  *b)*  Explain how you arrive at your answer.
4. *Write a tune in* AB *form,* 8 *bars in length, in the key of* G *minor, and in* $\frac{6}{8}$ *time. Include one modulation, and make use of the following groups of notes :—*



5. Write a tune in the key of F, in ternary form, 16 bars in length. Include suitable modulations, and make use of the groups of notes given in Question 4.
6. Transpose the tune you wrote for Question 5 into the key of D major. Use notes of double length, and add the new time signature.

IV. Setting Words to Music

Write tunes to the following words, using one note to each word or syllable :—

(*a*) Our bugles sang truce, for the night cloud had lower'd,
And the sentinel stars set their watch in the sky ;
And thousands had sunk on the ground, overpower'd,
The weary to sleep and the wounded to die.

(*b*) I wandered lonely as a cloud
That floats on high o'er vale and hills,
When all at once I saw a crowd,
A host of golden daffodils.

(*c*) Three fishers went sailing away to the West,
Away to the West as the sun went down ;
Each thought on the woman who loved him the best,
And the children stood watching them out of the town.

(*d*) You spotted snakes with double tongue,
Thorny hedgehogs, be not seen ;
Newts and blindworms, do no wrong,
Come not near our fairy queen.

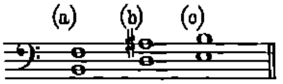
(*e*) Over hill, over dale,
Thorough bush, thorough brier,
Over park, over pale,
Thorough flood, thorough fire,
I do wander everywhere,
Swifter than the moon's sphere.

(*f*) And the stately ships go on
To this haven under the hill ;
But O, for the touch of a vanished hand,
And the sound of a voice that is still !

VI. Intervals

1. Write the following intervals, using the bass or F clef :—
   (*a*) 7th on D. (*b*) Perfect 5th on A. (*c*) 6th on F♯. (*d*) Diminished 5th on B. (*e*) 3rd on B♭. (*f*) Augmented 5th on G. Name one major key and one minor key in which each interval may occur.

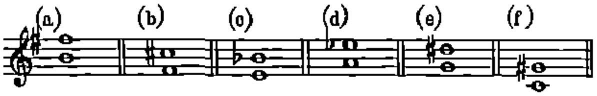
2. Give the full names for these intervals :



Name a minor key in which each occurs. Which of the three intervals does not occur in any major key ?

3. Write down *all* the perfect 5ths which appear in both the keys of C major, and D major.

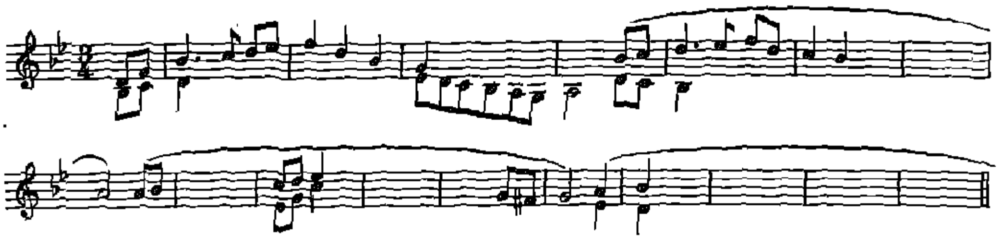
4. Which of these intervals are consonant and which are dissonant ?—



In the cases of those which are dissonant, alter one of the notes to make the interval consonants.

VII. Simple Part-writing

1. Complete the following as an example of two-part writing. Include modulations to the dominant, subdominant and relative minor keys :—



2. Write a tune, 16 bars in length, in binary form. Then add a second part below it, note against note.
3. Write a tune in ternary form, AABA, 16 bars in length. Then add a second part above it. Suitable modulations should be included.
4. Imagine you were instructing a beginner in the art of writing in two parts. Give a list of rules that you would recommend to him.

VIII. Triads

1. What is a triad? In how many positions may it be written? Illustrate your answer by giving examples in the keys of G minor and its relative major.
2. Give the tonic sol-fa names for the notes which make up the following triads in a major key: IV, VI, I, V, and II. Write each triad in root position in the key of D major.
3. Give the tonic sol-fa names for the notes which make up the following triads in a minor key: VI, IV, I and V. Write each triad in root position in the key of E minor.
4. The tonic triad will be played upon the pianoforte. Other triads and their inversions in that key will now be played. Name them.

ANSWERS TO EXERCISES

ANSWERS TO FIRST YEAR'S COURSE OF EXERCISES

In music, as in all arts, one is not always guided by the principle of right or wrong; but rather by what is best. To many of the exercises, therefore, there may be as many good answers as there are pupils who work them. Where this is the case, the answers given here are merely suggestions as to the kind of answer that should be written by the pupil. When *the answer is the reproduction of something given in the text, nothing further is given here.*

I. Notes

A. Easy.

A 1. Breve 𝅜 **2.** 2 **3.** 8 **4.** 16 **5.** Semibreve 𝅝 **6.** Crotchet ♩

B. More Difficult.

B 1. 32 **2.** Quaver **3.** Semiquaver **4.** 𝅝 **5.** 𝅜

Additional Exercises.

2. 𝅜 **3.** 𝅘𝅥𝅰 **4.** 𝅘𝅥𝅯 **5.** ♩ **6.** 12 **7.** 16 **8.** 16

II. Time

A. Easy.

2. *a)* $\frac{1}{2}$, $\frac{1}{8}$, 2, 4 *b)* 𝅗𝅥 minim, ♪ crotchet, 𝅘𝅥𝅰 demisemiquaver, 𝅘𝅥𝅯 semiquaver, 𝅝 semibreve.

B. More Difficult.

3. *a)* 13 *b)* 𝅜 breve, ♪ quaver, 𝅘𝅥𝅯 semiquaver, 𝅝 semibreve, ♩ crotchet.

Additional Exercises.

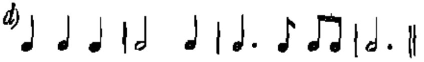
3. 𝅗𝅥 minim, 𝅘𝅥𝅯 semiquaver, ♪ quaver, 𝅝 semibreve. **4.** 2, 8, 1, 16, 4.

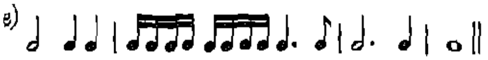
III. Time Signature—1

A. Easy.

(2) (*a*) What kind of note is equal to one beat. (*b*) The number of beats on each bar.

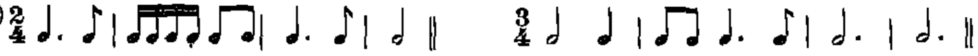
(*c*) Five crotchets in each bar.

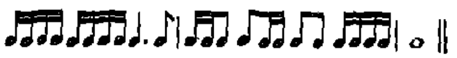
d)


e)


B. More Difficult.

(2) (*b*) Nine quavers, four minims and three semibreves in each bar respectively.

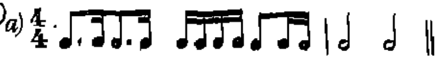
c)




d) $\frac{3}{4}$, $\frac{4}{4}$ (or $\frac{2}{2}$), $\frac{2}{4}$ (or $\frac{4}{8}$)

Additional Exercises.

(2) No. The only time there is an odd number in the denominator is when each beat is a semibreve (𝅝). The denominator is *doubled* each time. (3) (*a*) $\frac{3}{4}$. (*b*) $\frac{4}{2}$ (or $\frac{2}{1}$).

(4) *a)*


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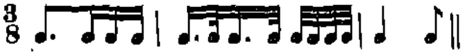

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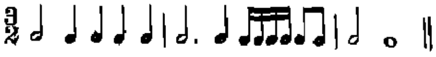

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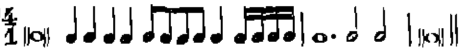


(5) What kind of note is equal to one beat (denominator), and the number of beats in each bar (numerator).

IV. Time Signature—2

A. Easy.

(1) Crotchet, minim, semibreve, quaver. (2) Three crotchets, five minims, three quavers, four semibreves in each bar respectively. (4) 120 crotchet beats to the minute.

B. More Difficult.

(1) 2, 8, 1, 4. (2) Five quavers, four minims, three semibreves, twelve semiquavers, in each bar respectively. (3) Words and metronome marks.

Additional Exercises.

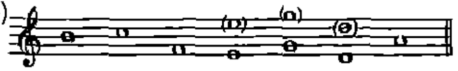
(1) For words, see text. (2) 72 minim beats and 152 quaver beats to the minute. (3) Metronome marks, because they indicate it *exactly*. (4) Four crotchets in the bar. Common time, C. (5) ₵.

V. Pitch

A. Easy.

(1) The lines on which notes are written; stave of eleven lines; sign to show which part of the great stave is being used. (2) Treble or G clef; bass or F clef; because they mark the position on the stave of these particular notes. (3) G, E, B, E, D, A, F.

(4)

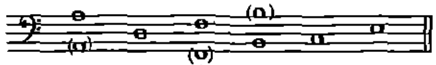


B. More Difficult.

(1) By the removal of the middle line.

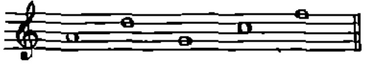
Additional Exercises.

(2)

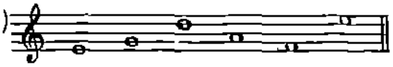


(3) E, G, B, D, F.

(4) F, A, C, E. (5)



(6)

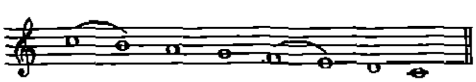


VI. Scales

A. Easy.

(6) *(a)* Chromatic. *(b)* Diatonic. *(c)* Diatonic. *(d)* Chromatic. (7) A sharp *raises* a note by one semitone; a flat *lowers* a note by one semitone.

B. More Difficult.



(3) *(a)* Major. *(b)* Chromatic. *(c)* Diatonic. *(d)* Major. *(e)* Diatonic. *(f)* Major.

(4) Chromatic—all semitones. Diatonic—tones and semitones; every note written on a different degree of the stave.

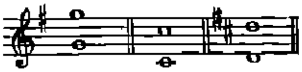
Additional Exercises.

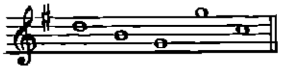
(2) The shortest distance between any two notes on the pianoforte. (3) A major scale is a *diatonic* scale, etc. Even a chromatic scale has semitones between the 3rd and 4th and the 7th and 8th notes. (4) *(a)* Chromatic. *(b)* Diatonic. *(c)* Major. *(d)* Major. *(e)* Diatonic. *(f)* Major.

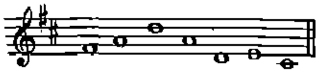
VII. Key

A. Easy.

(1) A diatonic scale whose semitones occur between the 3rd and 4th and the 7th and 8th notes. (2) A semitone occurs between the 6th and 7th notes instead of between the 7th and 8th notes. (3) Key Signature.

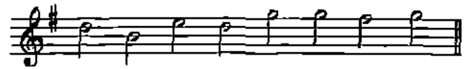






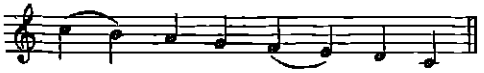
B. More Difficult.

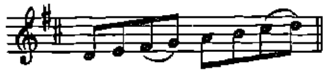
(1) Major, diatonic, diatonic, diatonic. (2)

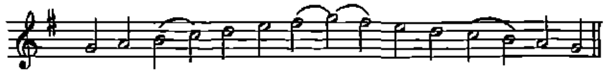


Oh God our Help in Ages Past! (3) To show what sharps or flats are being used during the course of the piece, and thus avoiding the necessity of writing them in on every occasion. From the signature, the key may be easily ascertained.

Additional Exercises.





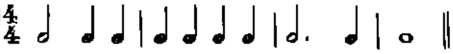


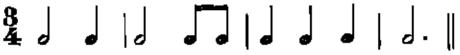
VIII. Tune Writing. 1—Rhythm

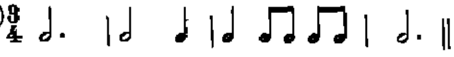
A. Easy.

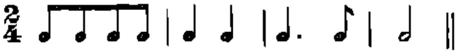
(2) The swing or lilt. (3) Bad. It does not flow easily. The longest note should be at the beginning of the bar. The minim in the 2nd bar causes a bad halt.

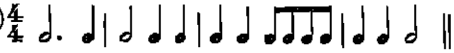
(4)

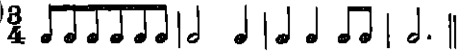
a) 

b) 

c) 

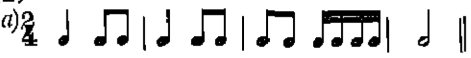
d) 

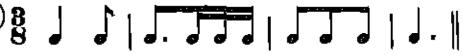
e) 

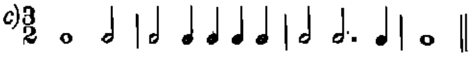
f) 

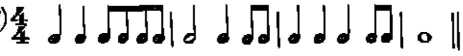
B. More Difficult.

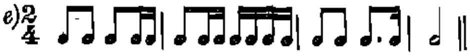
(2)

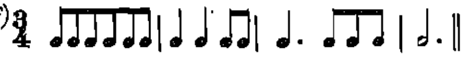
a) 

b) 

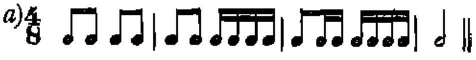
c) 

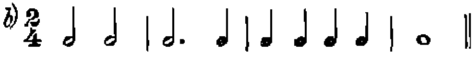
d) 

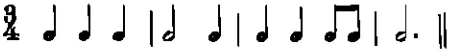
e) 

f) 

(3)

a) 

b) 

c) 

(4) (*a*) Good. (*b*) Bad. Poor arrangement of notes in 2nd bar. (*c*) Good, though it is a little uninteresting to have the first two bars in exactly the same rhythm (*d*) Good.

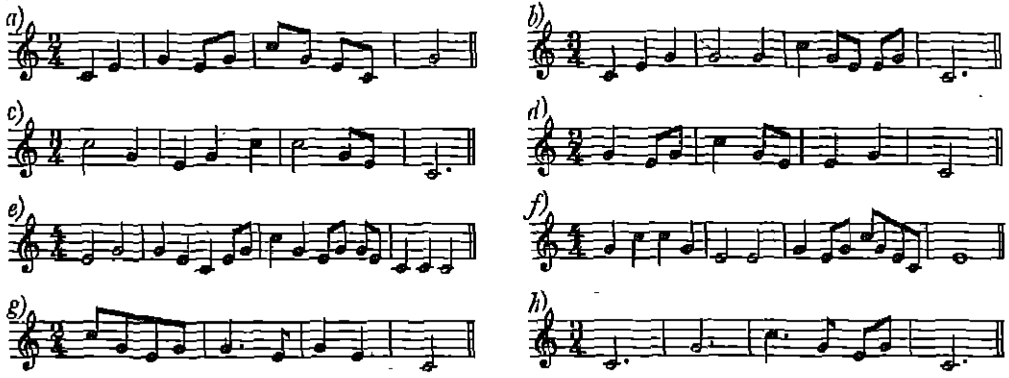
Additional Exercises.

(2) (*a*) Monotonous. (*b*) 1st bar is halting. (*c*) Satisfactory. (*d*) 3rd bar halting.
(3) Good rhythm and good melody.

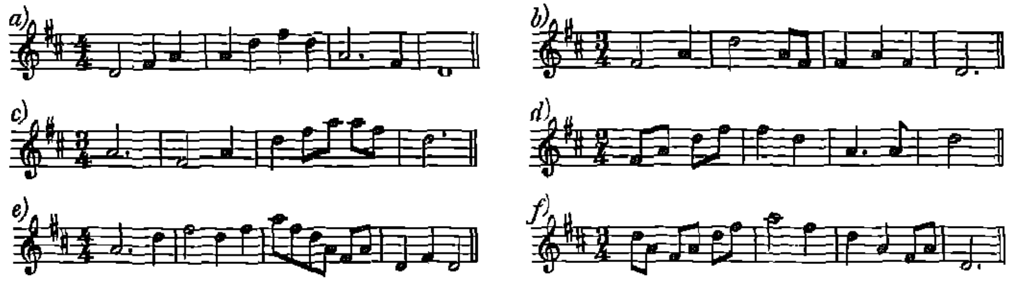
IX. Tune Writing. 2—Melody

A. Easy.

(2)

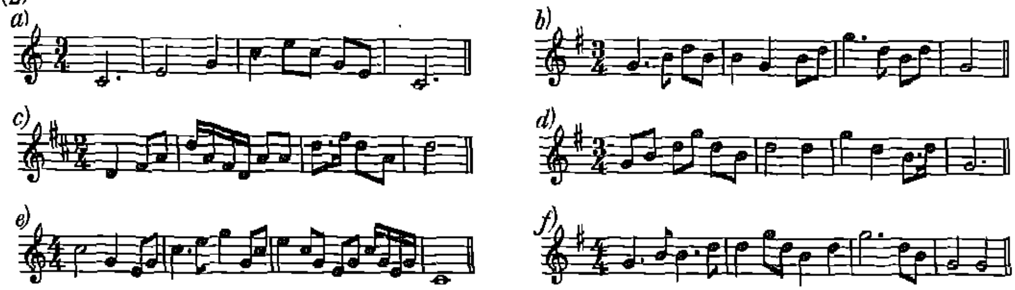


(3)



B. More Difficult.

(2)



(4) Bar 1 : Too many repeated notes. Bar 2 : Too big a leap.
Bar 3 : Long note should be at the beginning of the bar.
Bar 4 : Tune should end on the 1st beat of the last bar.

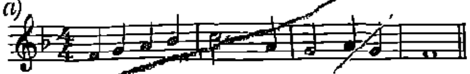
(5) Clef in wrong position. Key signature should be *before* time signature, and the sharp *should be on the top line of the stave. Too many repeated* notes in Bar 3. Bar 4 has 4 *beats.* Tune should end on the first beat of the last bar. (6) (*a*) Wide compass, and big leap in Bar 2 in the same direction. (*b*) Numerous big leaps.

X. Tune Writing—3

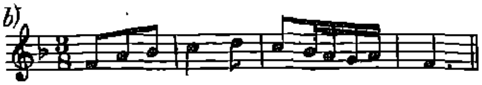
A. Easy.

(2)

a)



b)



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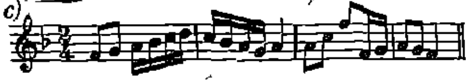
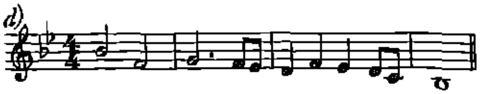
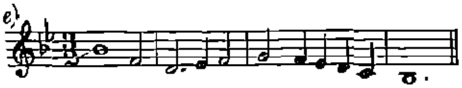


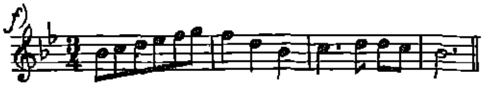
d)



e)



f)

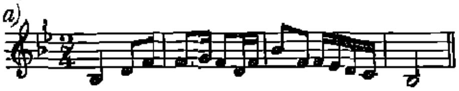


(4) To get a semitone between the 3rd and 4th notes.

B. More Difficult.

(2)

a)



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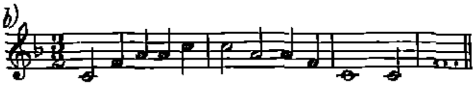

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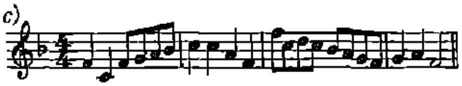

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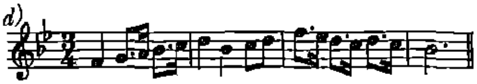

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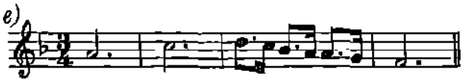

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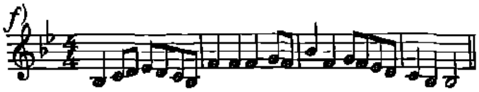
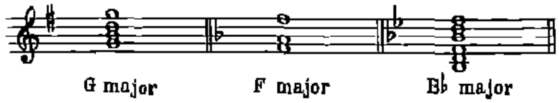


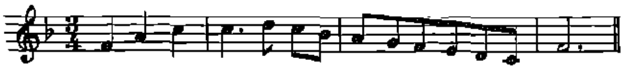
(3) B♭ required in the key signature. Bar 1 is monotonous. Two complete bars of scales not interesting. Bar 3 has *too many* beats, and the leaps d-d'-d are *not artistic.* Tune should end on 1st beat of last bar. It is *five bars* in length, which is unusual.

(4)



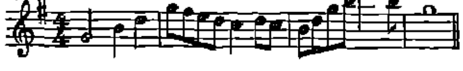
Additional Exercises.

(1)



(2)

a)



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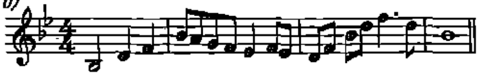
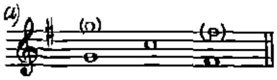


XI. The Note "TE"

A. Easy.

(2)

a)



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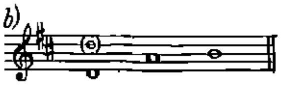

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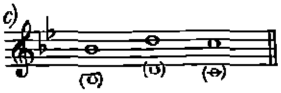
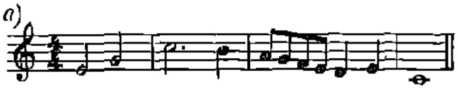


(3) Because it naturally "leads" to the tonic.

(4)

a)



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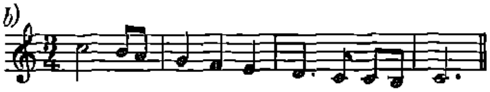

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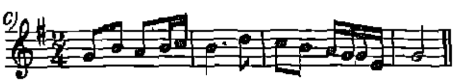

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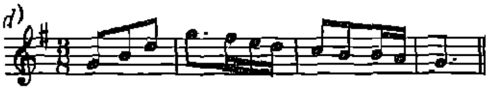
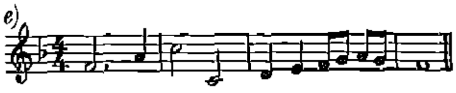
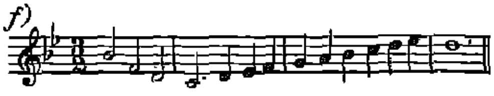


e)



f)

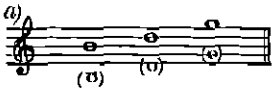


B. More Difficult.

(3) Tonic, mediant, submediant, leading note, supertonic, subdominant, tonic, dominant.

(4)

a)



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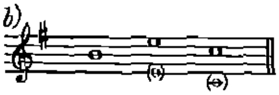

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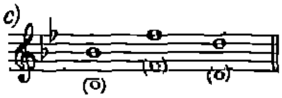
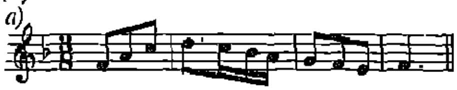


(5)

a)



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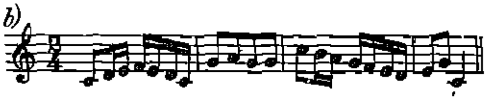

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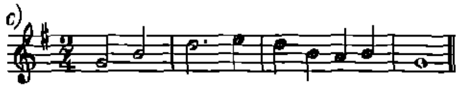

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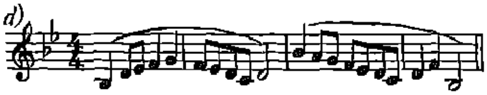
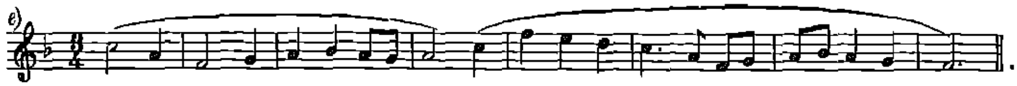


e)



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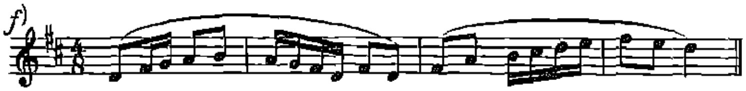
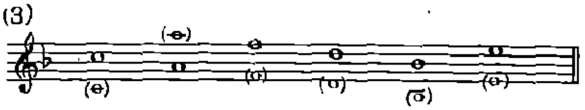


Additional Exercises.

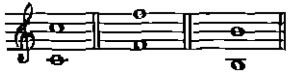
(2) Dominant, mediant, tonic, submediant, subdominant, leading note.

(3)



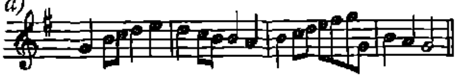
XII. Revision

A. Easy.

(1) (*a*) 4. (*b*) 16. (*c*) 12. (2) The denominator, what kind of note is equal to one beat; the numerator, the number of beats in each bar. (3) Three minims, four quavers, and two semibreves in each bar respectively. (4) (*a*) $\frac{2}{4}$. (*b*) $\frac{5}{8}$. (*c*) $\frac{3}{2}$. (5) C. (6) Between the 3rd and 4th and the 7th and 8th notes. (7) To get the semitones in the correct places. (8) Key signature. (9)  (10) F, D, C, B♭, G major.

(12)

a)



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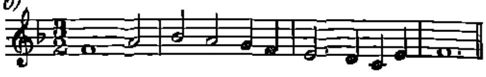

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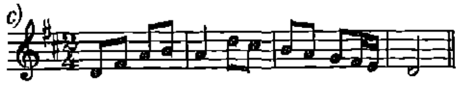

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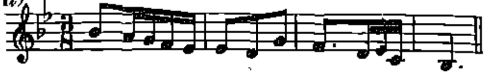
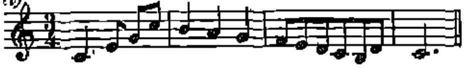


B. More Difficult.

(1) (*a*) 𝅝 (*b*) 𝅝 (*c*) 𝅗𝅥 (2) Denominator. (*a*) 1. (*b*) 8. (*c*) 2. (3) Nine quavers, two minims, and four crotchets in each bar respectively. (8) Clef not in position. Key signature should be *before* time signature and the sharp should be on the top line of the stave. Bar 2, wrong treatment of "*te*". Bars 3 and 4, too much movement in the same direction. Bar 3 has only 3 beats. Too many repeated notes at the end. Tune should end on 1st or 3rd beat of a 4-beat bar.

(10)

a)



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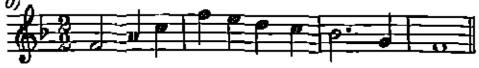

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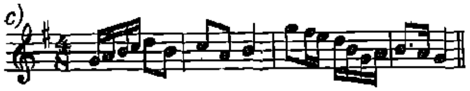

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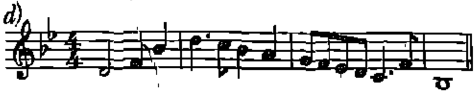
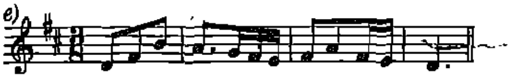


e)



Additional Exercises.

(1) Position of note on stave and its shape. (2) By beats or pulses. (3) (*a*) Time signature. (*b*) Words or metronome marks.

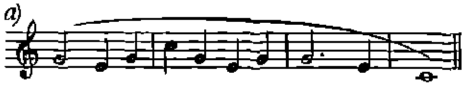
ANSWERS TO SECOND YEAR'S COURSE OF EXERCISES

I. Four-bar Phrases

A. Easy.

(2)

a)



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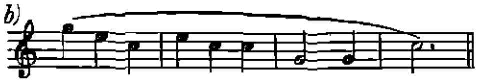

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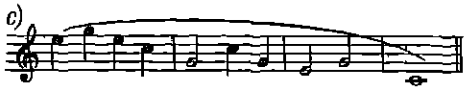

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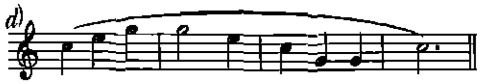
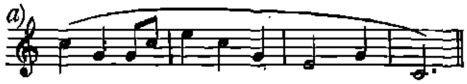


B. More Difficult.

(2)

a)



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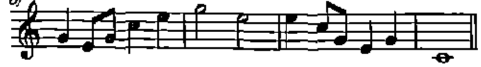

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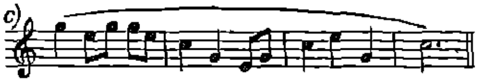
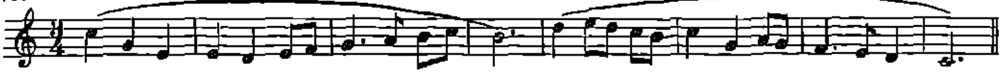
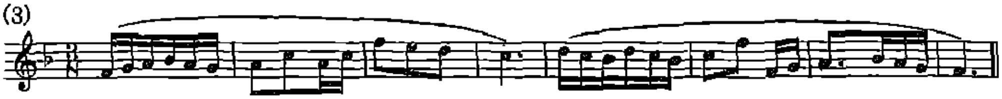
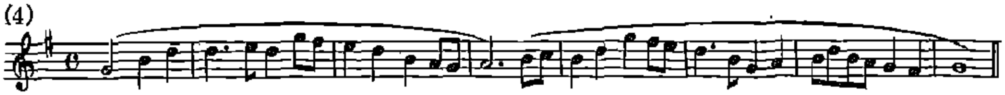


(3)


(4) Irregular phrase lengths (4 bars plus 5 bars) : 2nd phrase is in a different style : long note in bar 3 of 2nd phrase causes a stop.

Additional Exercises.

(3)


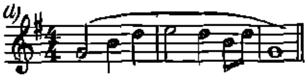
(4)


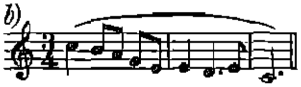
(5) Too many leaps at the beginning ; no division into phrases ; is only 7 bars in length ; the sudden appearance of the semiquavers in bar 6 is unfitting to the general style.

II. Three-bar Phrases

A. Easy.

(2)

a)


b)


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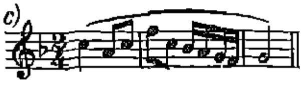

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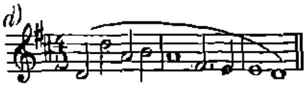
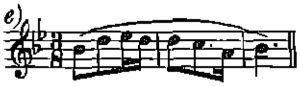


e)


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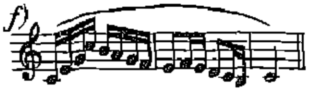
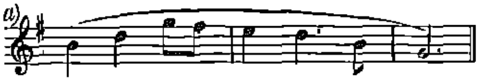


(3)

a)


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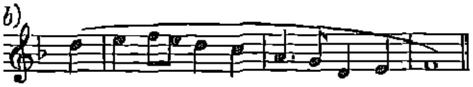

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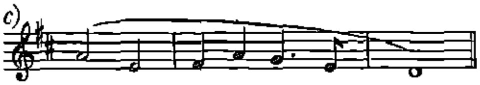

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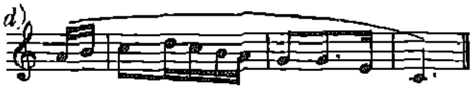
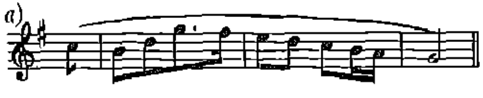


B. More Difficult.

(2)

a)


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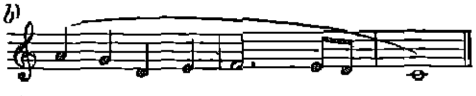

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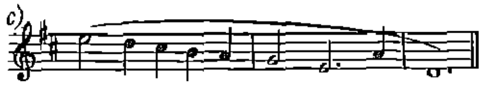
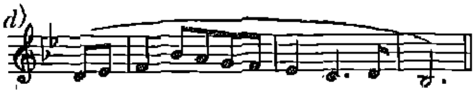
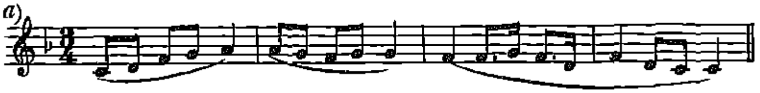


d)


(4) *a)*



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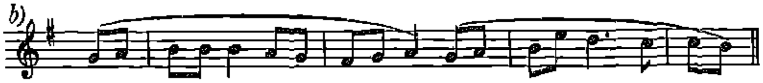

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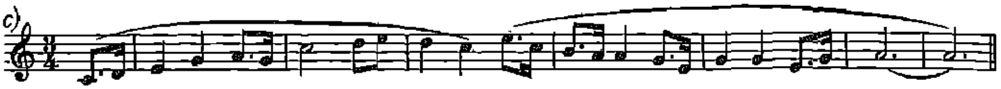


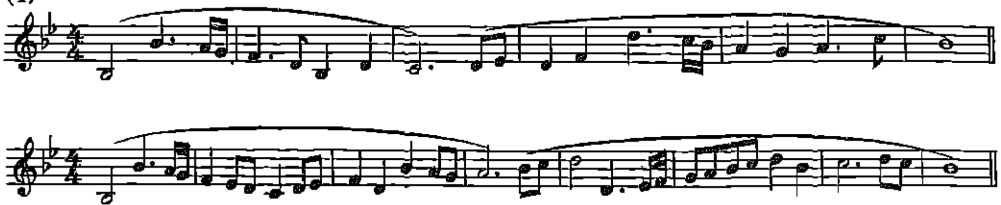
Additional Exercises.

(1) Phrases of *Pretty Polly Oliver* are 4 bars in length ; those of *The Blackbird,* 3 bars.

(2) 4 bars.

(3) The phrases : the bar lines show the position of the strong notes.

(4)

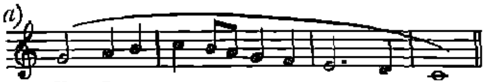


A. Easy.

III. Modulation to the Dominant Key

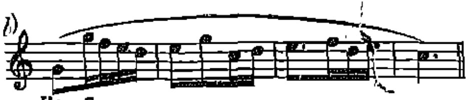
(2)

a)



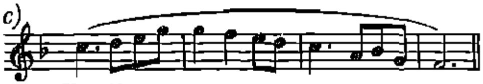
Key C

b)



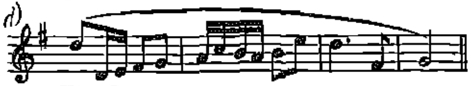
Key C

c)



Key F

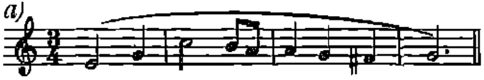
d)



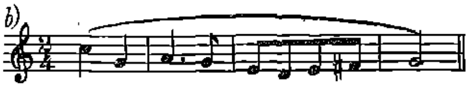
Key G

(3)

a)



b)



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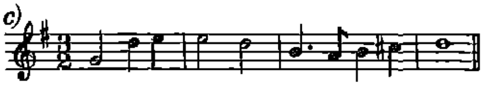

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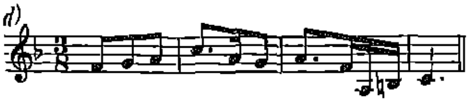
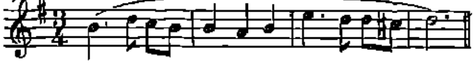


(4) The ending of a phrase.

B. More Difficult.

(2)

a)



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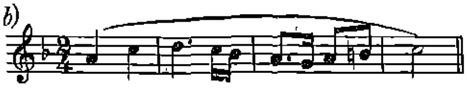

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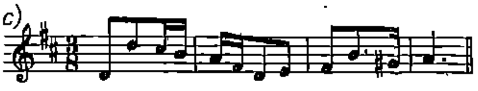

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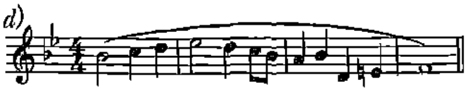
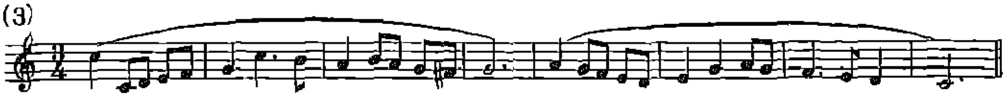
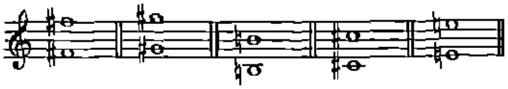


(3)



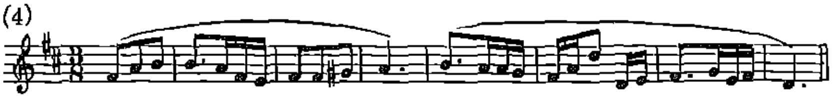
Additional Exercises.

(1) Change of key. (2) *Fe.*

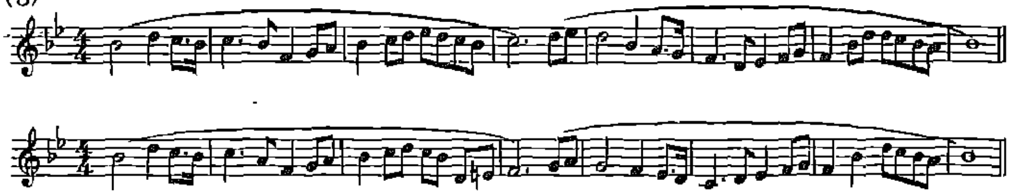


(3) G, A, C, F, D.

(4)



(5)



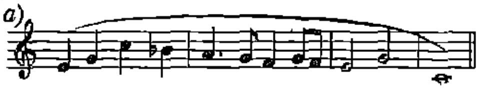
IV. Modulation to the Subdominant Key

It will be noticed that some of these tunes return to the tonic key without the use of *te*. The effect is quite satisfactory as *ta* has been placed well away from the end of the tune.

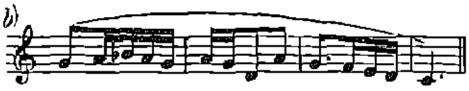
A. Easy.

(2)

a)



b)



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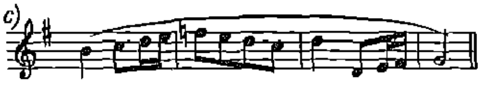

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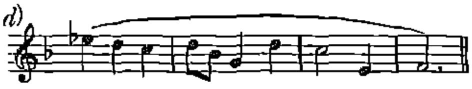
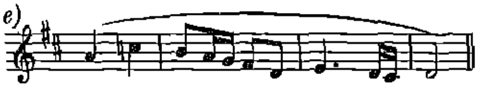
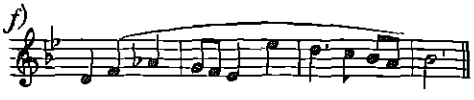


e)



f)

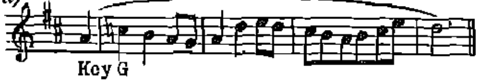


B. More Difficult.

(2) (*a*) First half of tune. (*b*) Second half of tune.

(3)

a)



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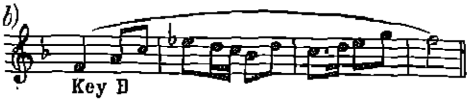

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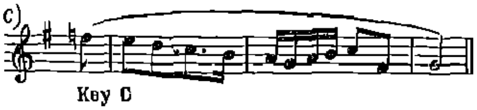

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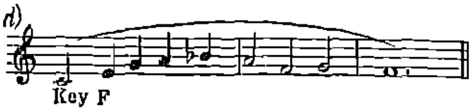
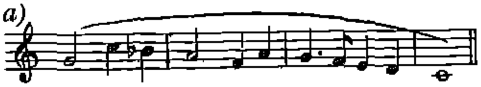


(4)

a)



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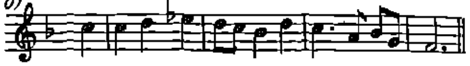
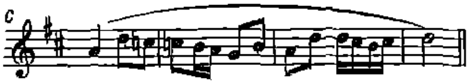
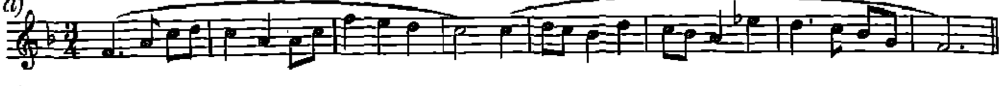


c

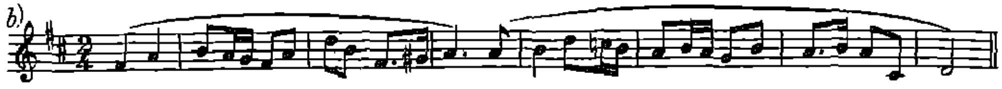


(5)

a)

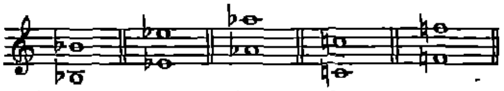


b)



Additional Exercises.

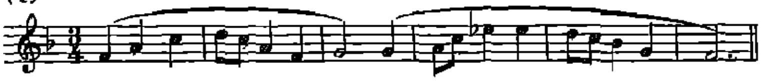
(1) F, B♭, E♭, G, C.

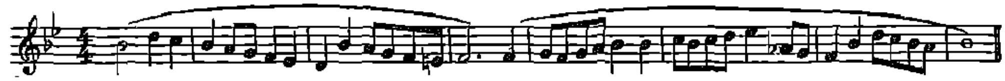


(2) (*a*) No. The modulation to the subdominant in Bar 2 is too early; and that to the dominant in Bar 6 prevents the tune getting back strongly to the tonic key. (*b*) Yes.

(3) (*a*) C, G, F. (*b*) D, A, G. (*c*) B♭, F, E♭.

(4)





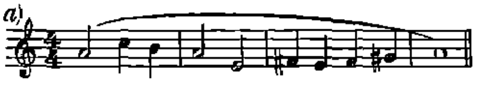
Keys B♭, F, E♭.

V. The Minor Scale

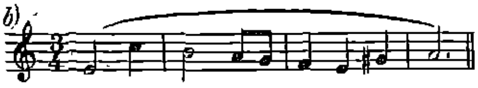
A. Easy.

(5)

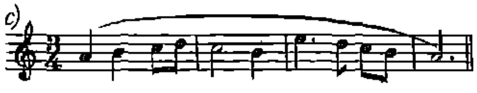
a)



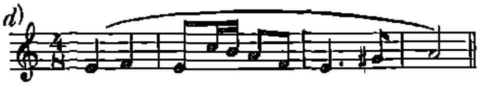
b)



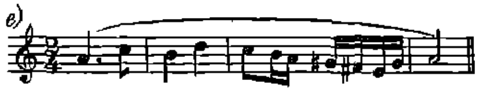
c)



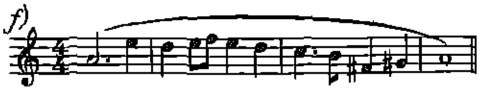
d)



e)



f)

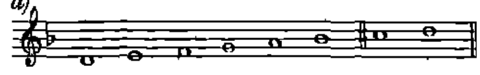


B. More Difficult.

(2) To get rid of the awkward jump between *fah* and *se*.

(3)

a)



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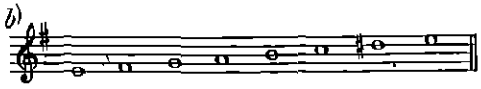

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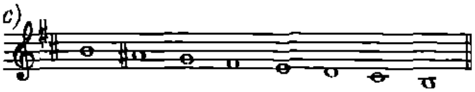

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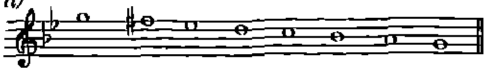
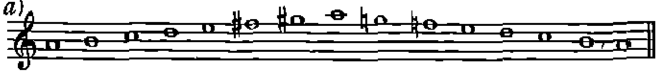
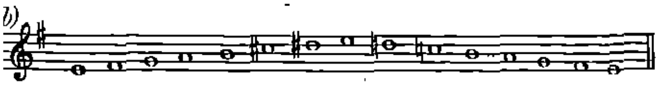


(4)

a)



b)



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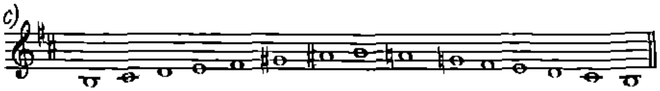
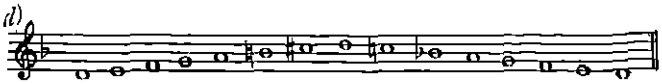
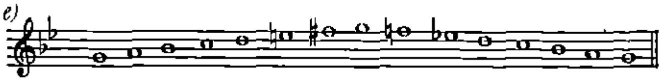


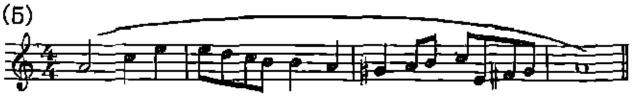
d)



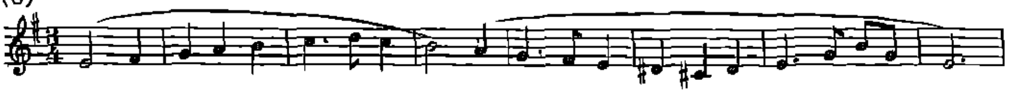
e)



(5)

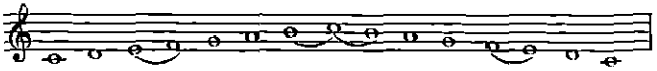


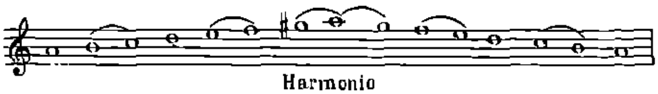
(6)



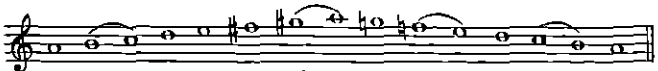
Additional Exercises.

(1)





Harmonic

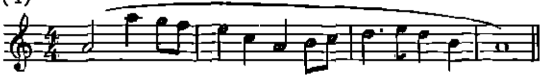


Melodic

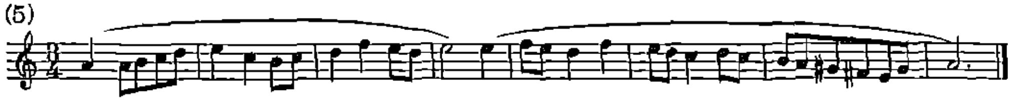
(2) (*a*) Minor. (*b*) Major. (*c*) Major. Tunes in a major key are usually bright and happy; those in a minor key are sad.

(3) (*a*) Major; it ends *soh, doh*. (*b*) Minor; it ends *se, lah*. (*c*) Minor; it ends on *lah*.

(4)



(5)

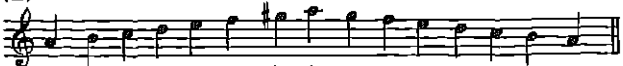


VI. The Relative Minor

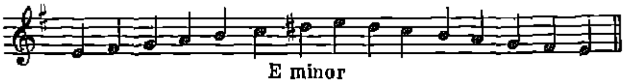
A. Easy.

(1) (*a*) G major, E minor. (*b*) F major, D minor. (*c*) C major, A minor. (*d*) B♭ major, G minor. (*e*) D major, B minor.

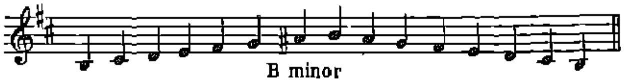
(2)



A minor

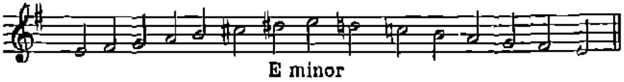


E minor

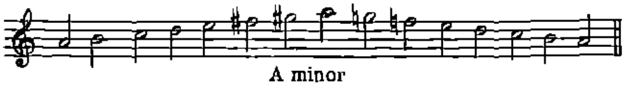


B minor

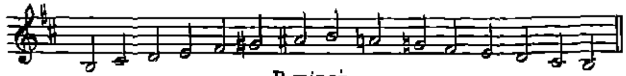
(3)



E minor



A minor

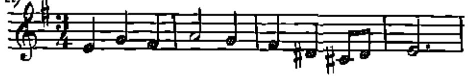


B minor

(4) E, B, D, A, G.

(6)

a)



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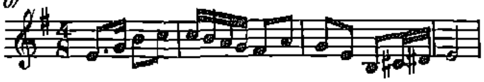
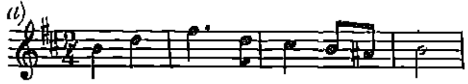


(7)

a)



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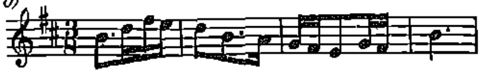
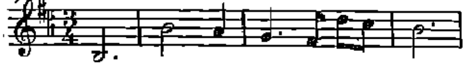
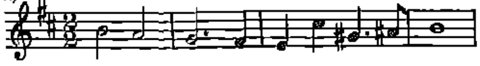


c)



d)

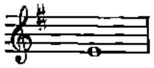


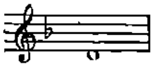
B. More Difficult.

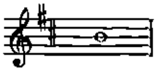
(2) (*a*) C major. (*b*) A minor. (*c*) B minor. (*d*) G major. (*e*) A minor. (*f*) B minor. (*a*) A minor. (*b*) C major. (*c*) D major. (*d*) E minor. (*e*) C major. (*f*) D major.

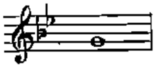
(3) Because it has the same key signature and many notes are common to the two scales. If the tune ended on *lah*, or frequently used the note *se*, it would be in the relative minor key.

(4)









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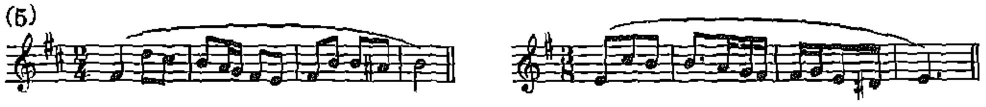

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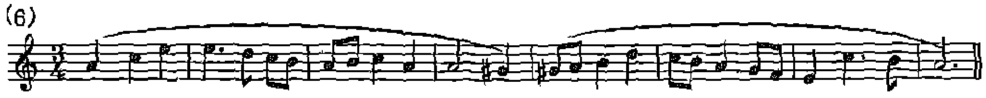
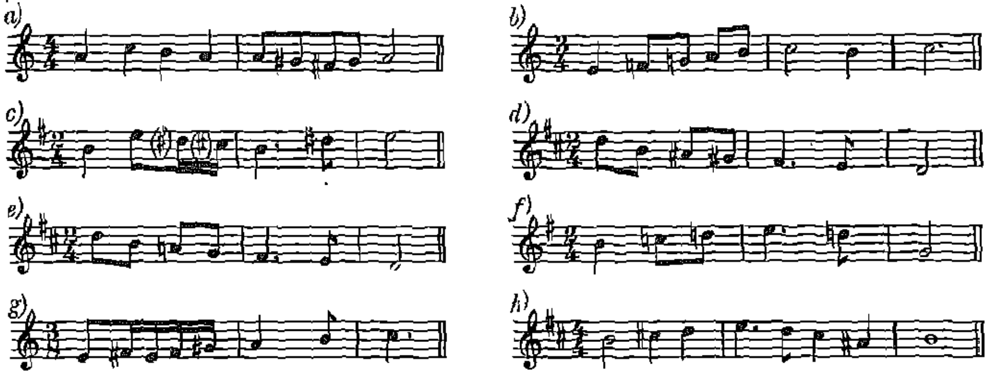
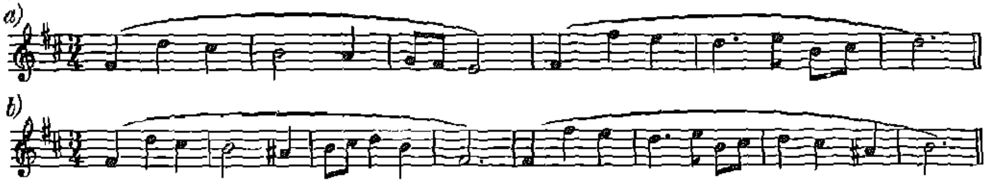


Additional Exercises.

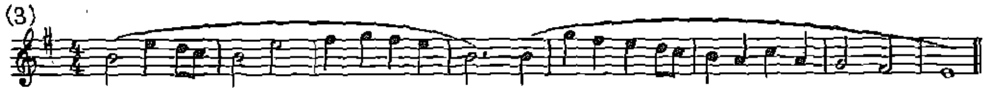
(1)



(2)

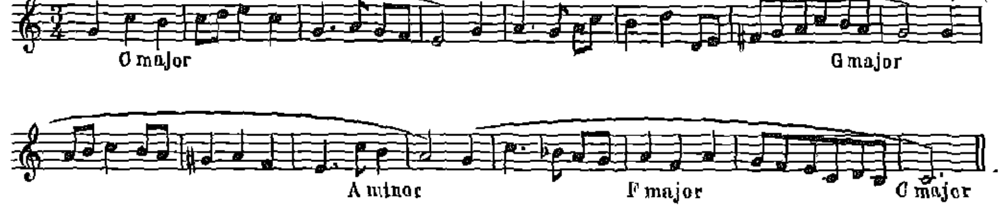


(3)



(4) *a)* m l se l t d' m ba se l E minor *b)* d' t l se l s f m r m l E minor

(5)

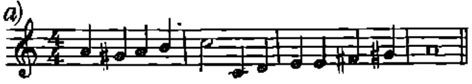


VII. Modulation to the Relative Major or Minor Key

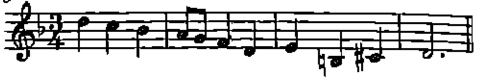
A. Easy.

(3)

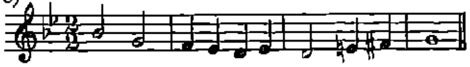
a)



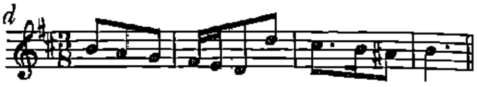
b



c)

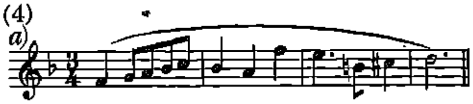


d



(4)

a)



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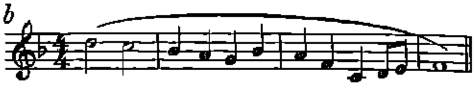

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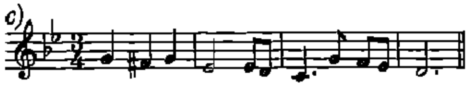
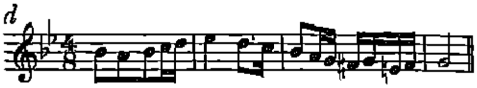
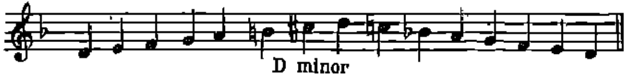


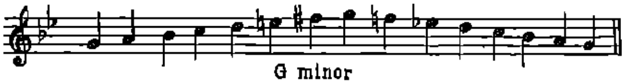
d



(5)



D minor

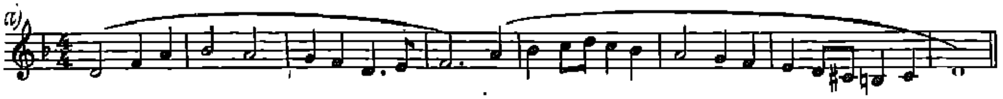


G minor

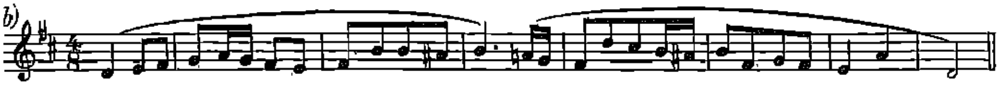
B. More Difficult.

(2)

a)



b)



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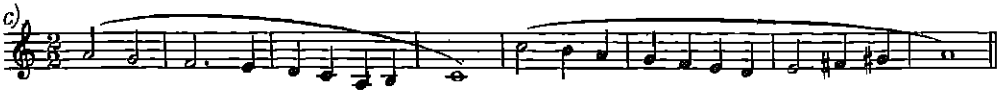
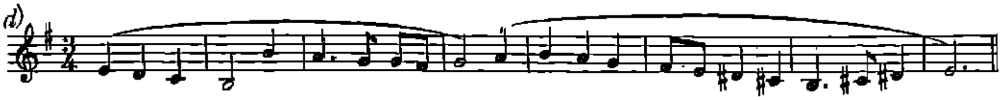
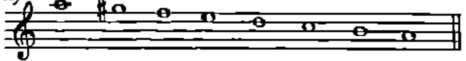


d)



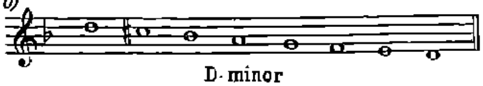
(3)

a)

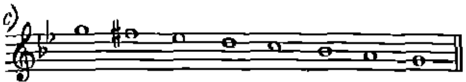


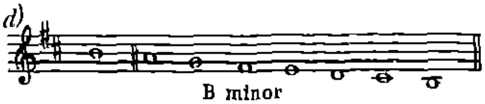
A minor

b)

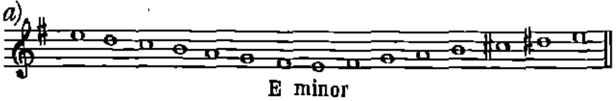


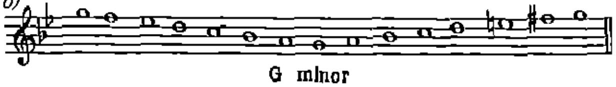
D minor

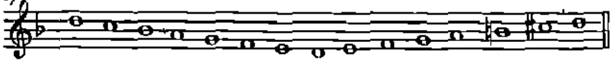
c)

G minor

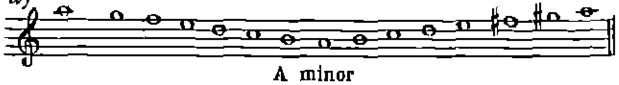
d)

B minor

(4)

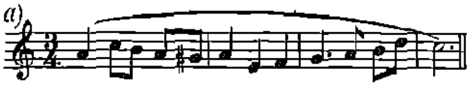
a)

E minor

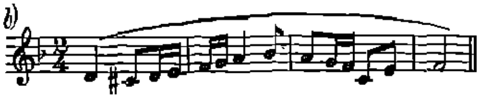
b)

G minor

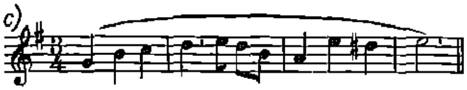
c)

D minor

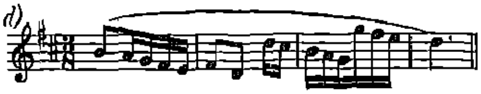
d)

A minor

(5)

a)


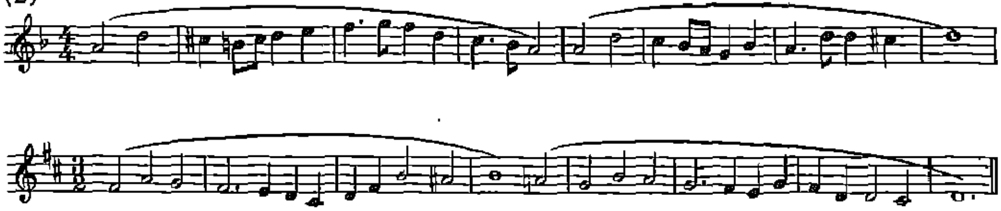
b)


c)


d)


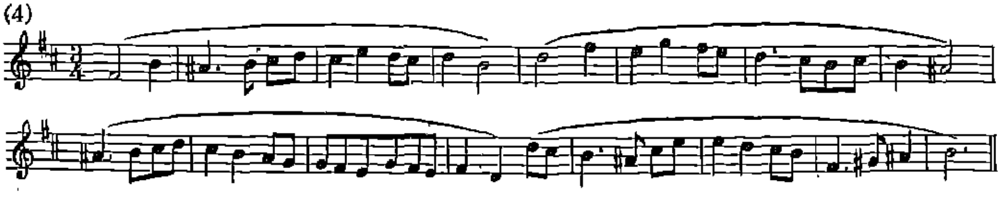
Additional Exercises.

(1) D major, A minor, E minor, B♭ major.

(2)


The other tunes to be on similar lines.

(3) The frequent use of *se* would suggest the minor key. If the tune centred round *lah* it would probably be in the minor key. (*a*) B♭ major. It centres round *doh*. (*b*) G minor. It centres round, and ends on *lah*. (*c*) G minor. It ends with *se*, *lah*.

(4)


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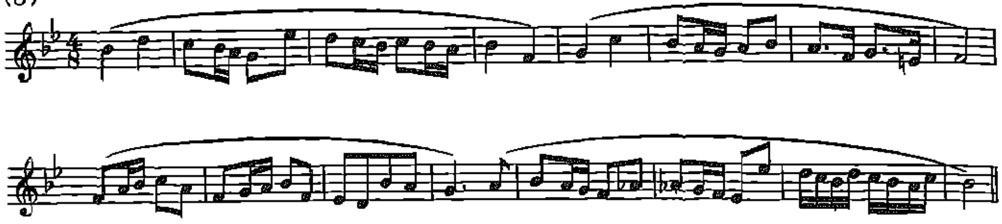


VIII. Form—1

A. Easy.

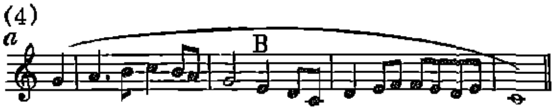
(1) A composition in two sections, as it were a statement and answer. AB form; two-part form.

(2) Merely the repetition of the second phrase or section.

(3) Yes. Each phrase or section would be repeated.

(4)

a



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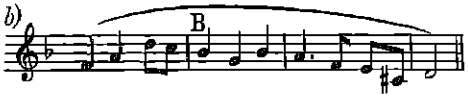

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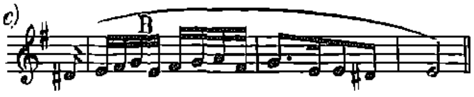
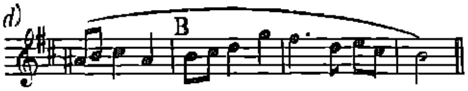
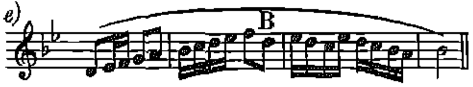


d)



e)

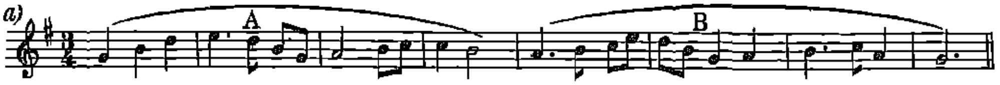


B. More Difficult.

(1) So that the composer may express himself in an intelligible manner, and the listener follow what he has to say.

(2)

a)



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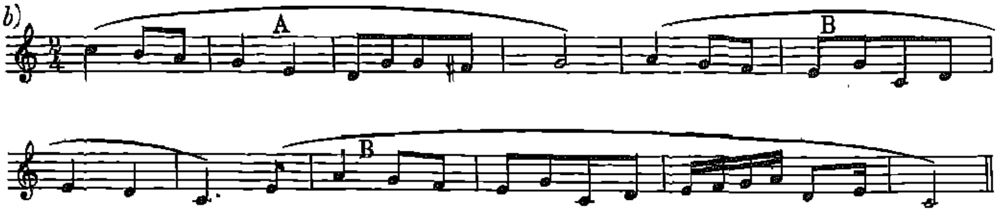

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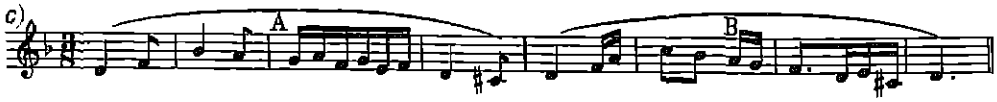

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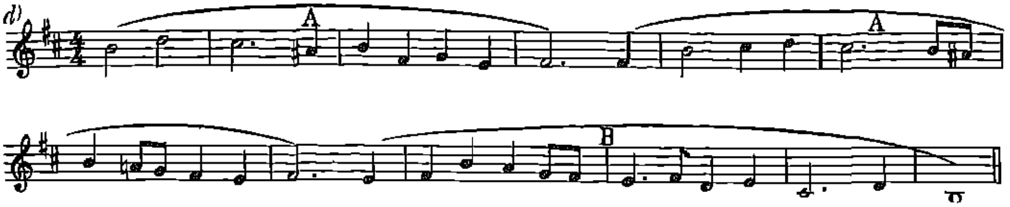

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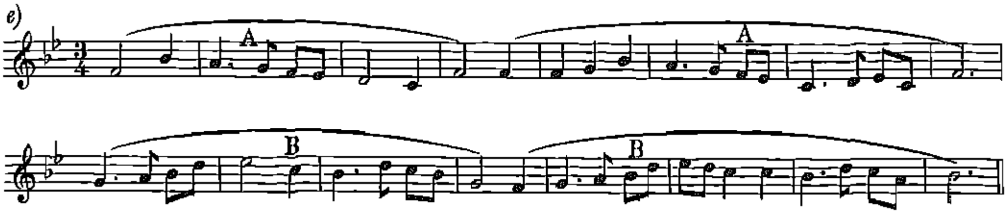
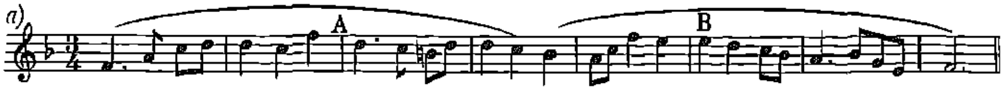


Additional Exercises.

(1)

a)



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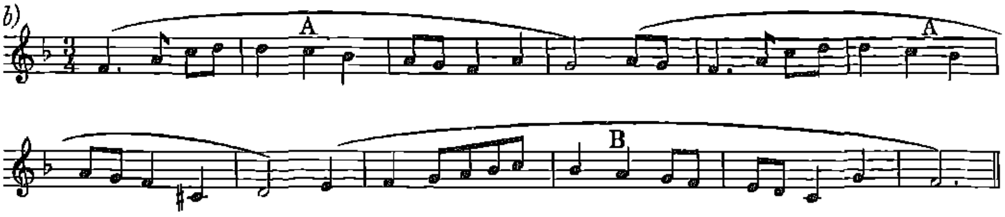

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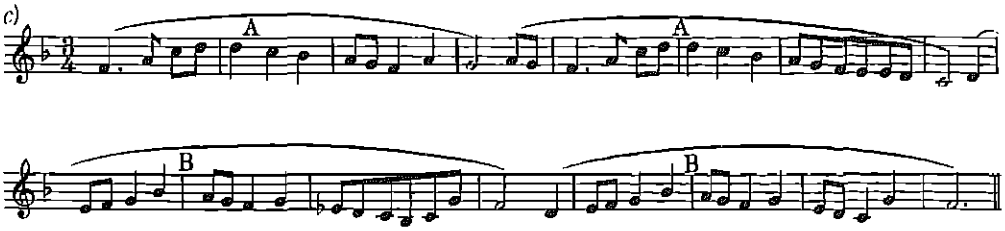
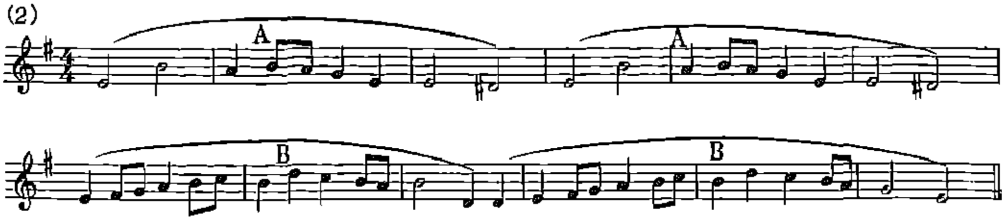
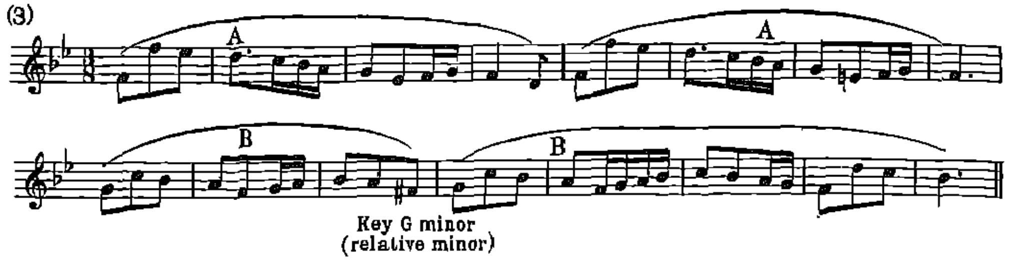


(2)



(3)



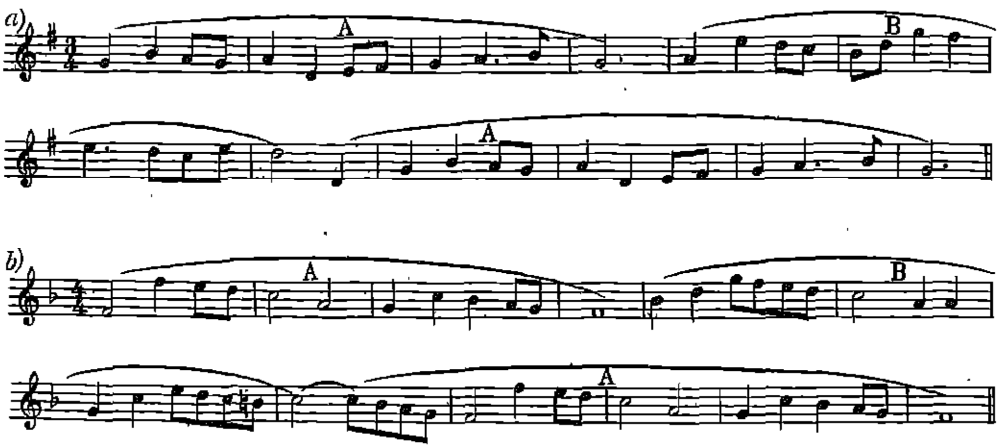
IX. Form—2

A. Easy.

(1) A composition in three sections—statement, contrast and restatement. Three-part form. ABA form.

(3) (*a*) Ternary, (*b*) binary, (*c*) binary, (*d*) ternary, (*e*) binary, (*f*) ternary.

(4)



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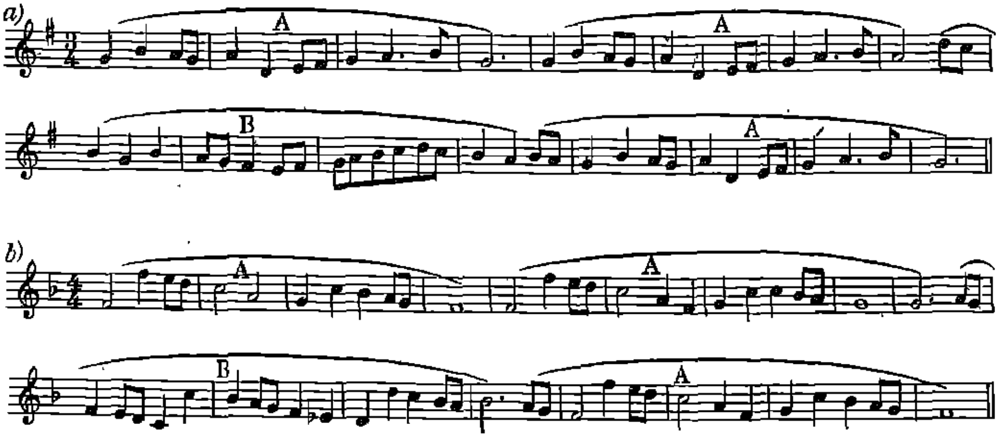
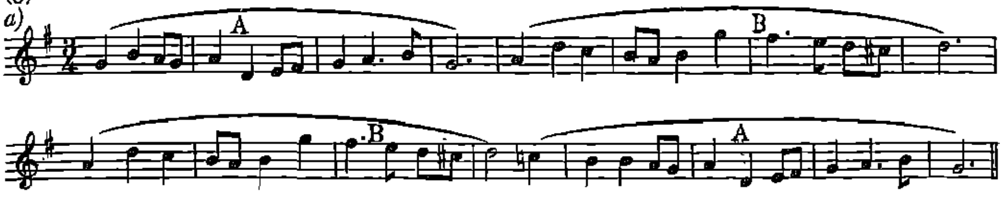


(6)

a)



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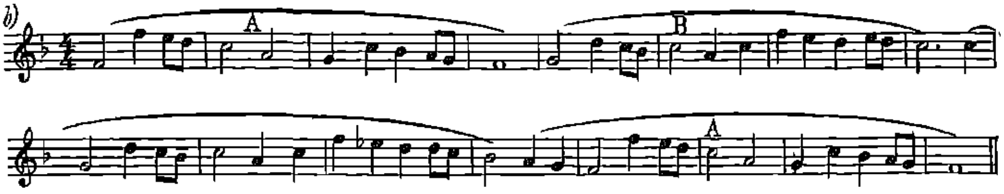
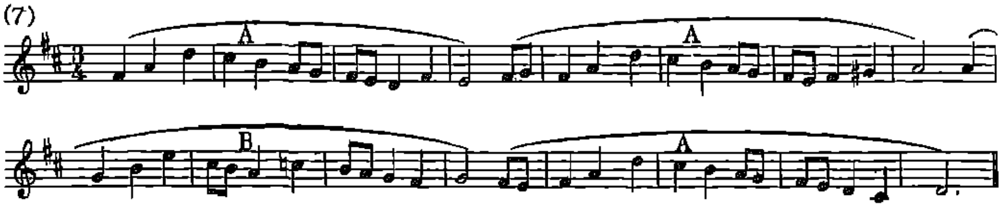


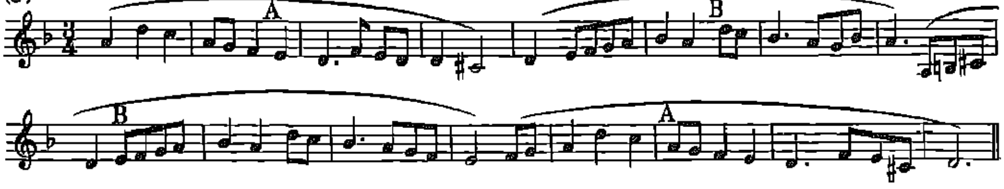
(7)



B. More Difficult.

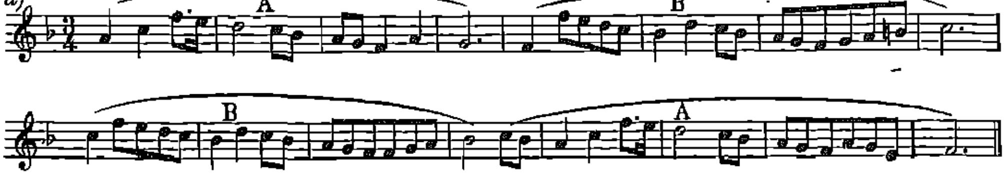
(2) (*a*) Ternary AABA. (*b*) Ternary ABBA. (*c*) Binary AB. (*d*) Ternary AABA. (*e*) Ternary ABBAA. Phrase B consists of 2 bars only, and phrase A, when repeated, has considerable modification at the beginning.

(3)

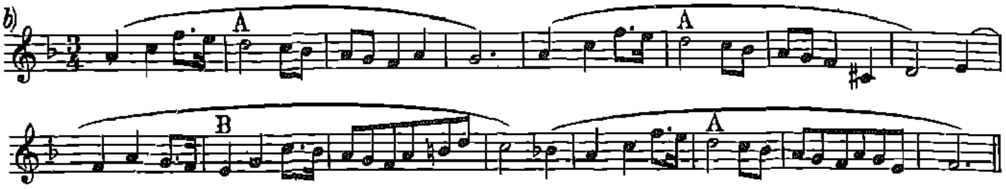


(4)

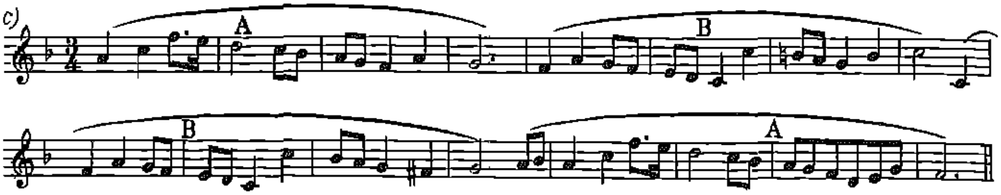
a)



b)



c)



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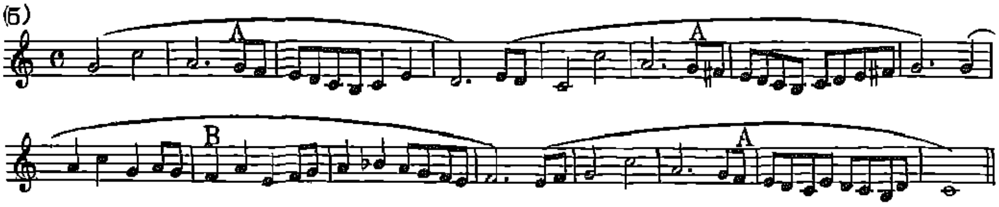
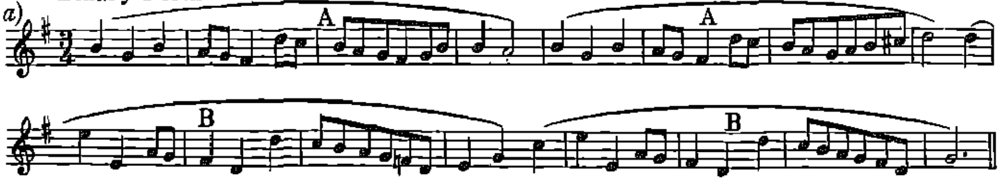


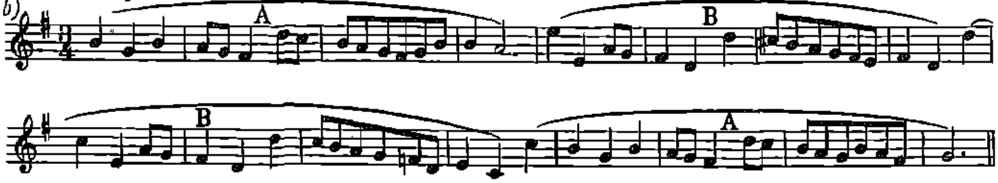
(6) Binary Form

a)



Tenary Form

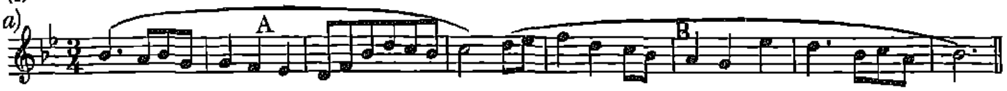
b)



Additional Exercises.

(1)

a)



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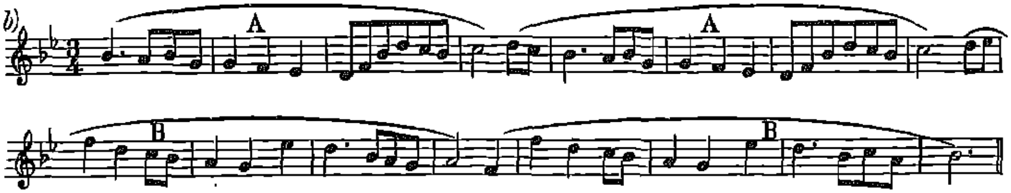

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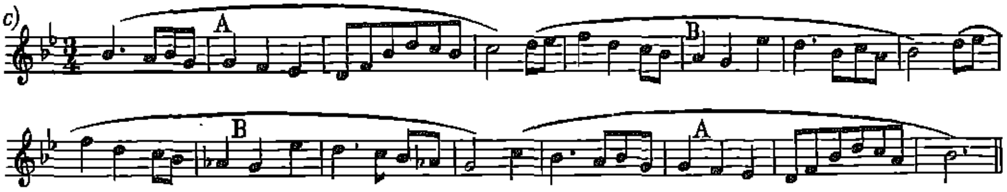
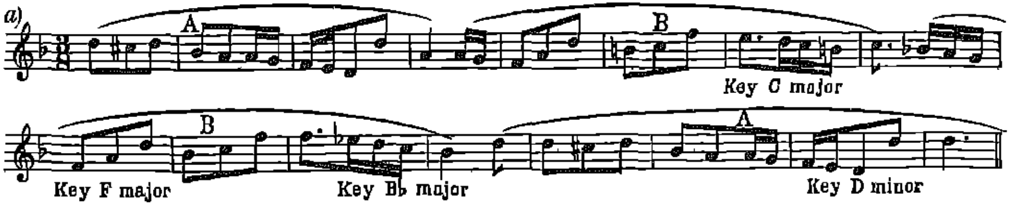


(2)

a)



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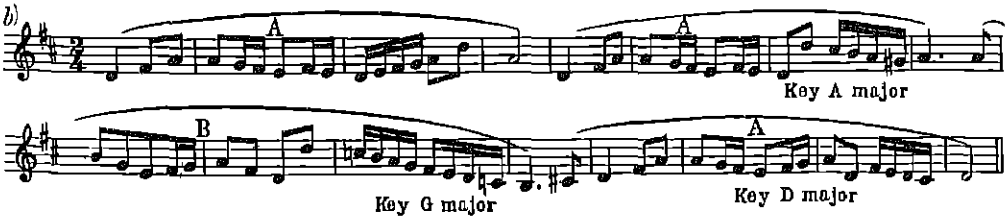


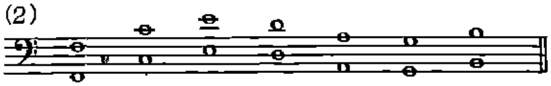
ANSWERS TO THIRD YEAR'S COURSE OF EXERCISES

I. The Bass or F Clef—1

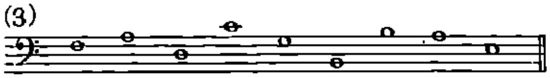
A. Easy.

(1) F, D, A, E, C, B, G, A, G, G, B, C, F, C.

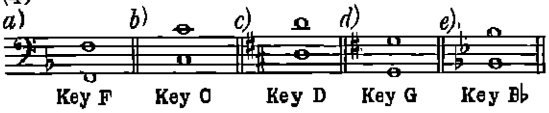
(2)



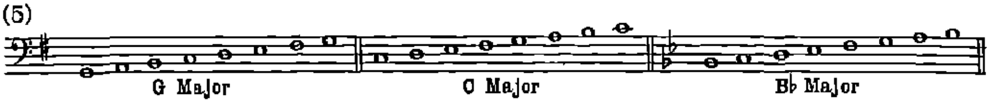
(3)



(4)



(5)



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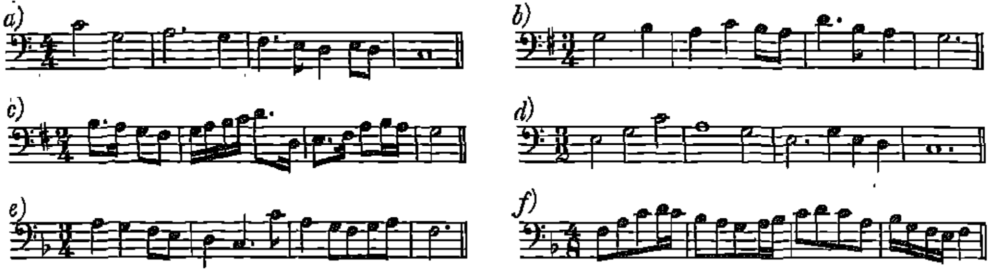
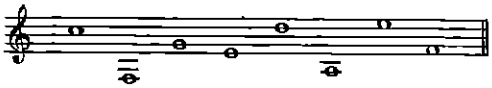
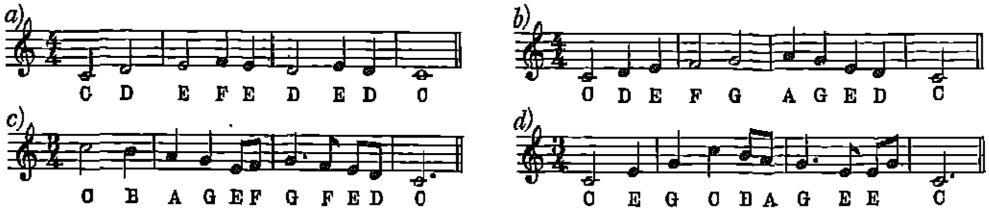


B. More Difficult.

(1) C, F, G, E, D, A, E, F.

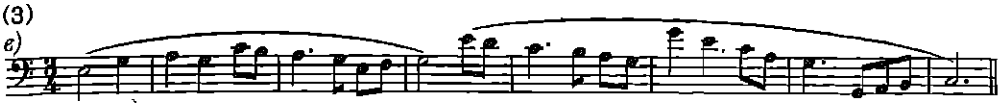


(2)



(3)

e)



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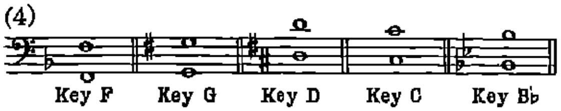
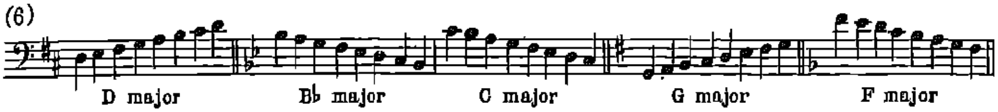


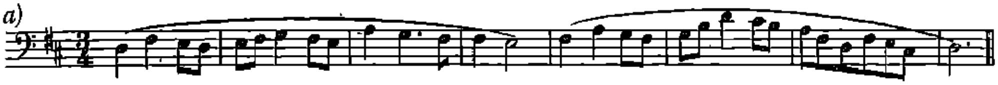
(5) Treble or G clef; Bass or F clef. They mark the position on the stave of the notes G above middle C, and F below middle C respectively.

(6)



(8)

a)



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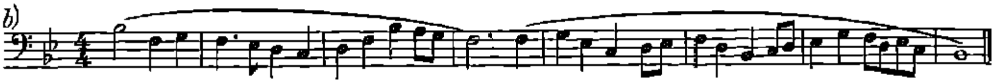
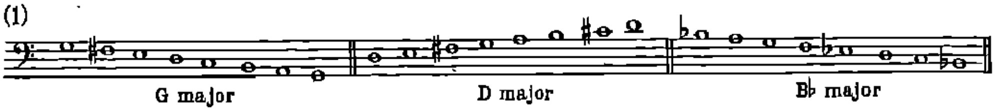


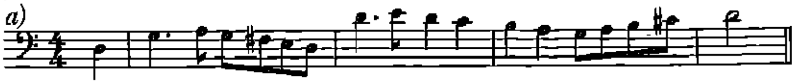
Additional Exercises.

(1)



(2)

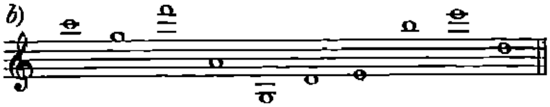
a)



(*b*) D major

(3) (*a*) C, G, F, A, G, D, E, B, E, D.

b)



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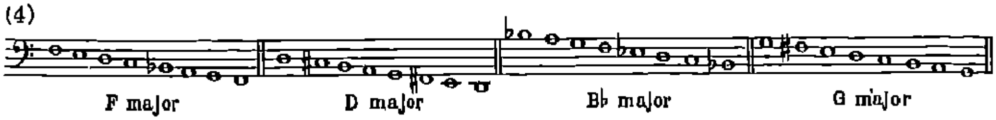

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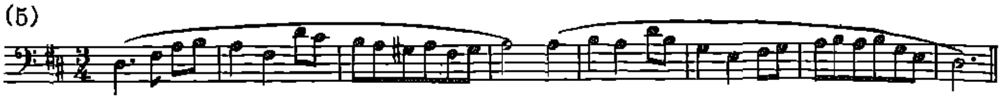

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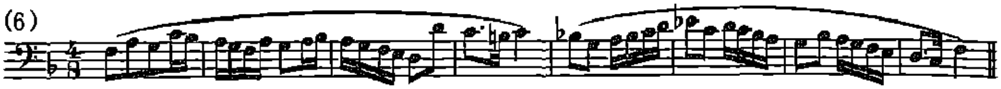

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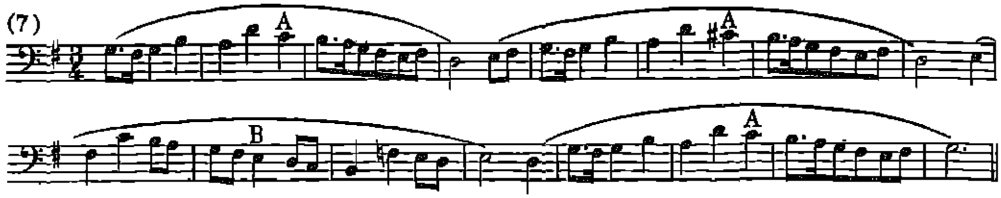

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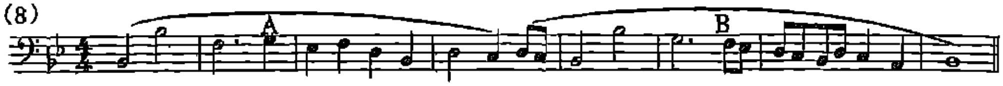

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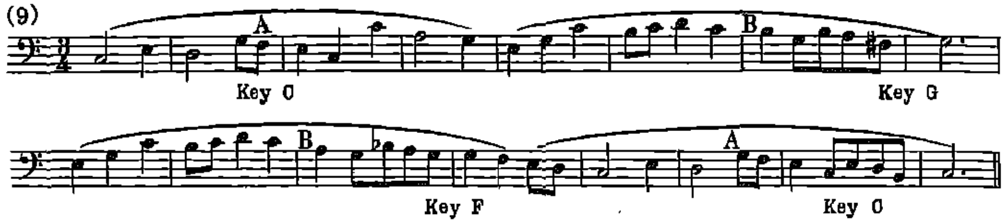
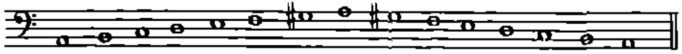


II. The Bass or F Clef—2

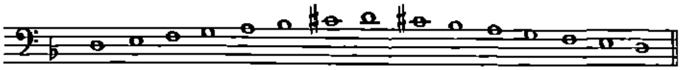
A. Easy.

(1) (*a*) E minor. (*b*) G minor. (*c*) A minor. (*d*) B minor. (*e*) D minor.
(*a*) G major. (*b*) B♭ major. (*c*) C major. (*d*) D major. (*e*) F major.

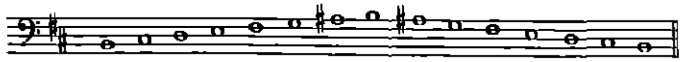
(2)



A minor

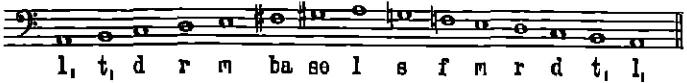


D minor

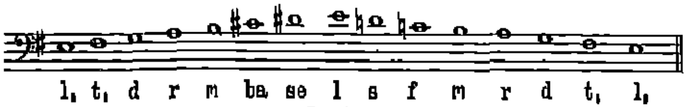


B minor

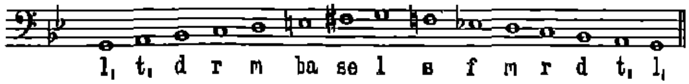
(3)



A minor



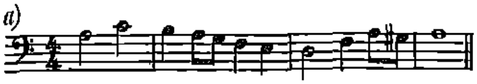
E minor



G minor

(5)

a)



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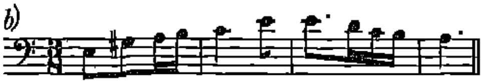

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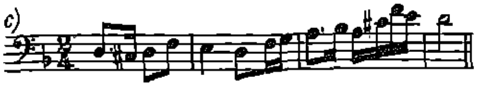

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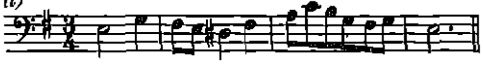

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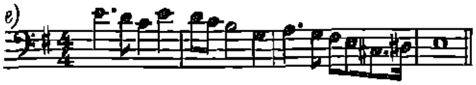

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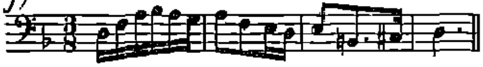
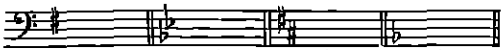


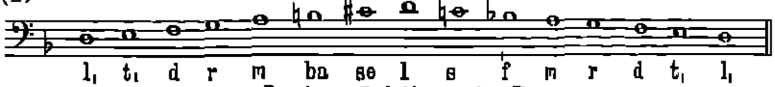
B. More Difficult.

(1)

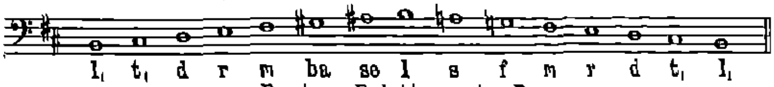


E minor G major | G minor B♭ major | B minor D major | D minor F major

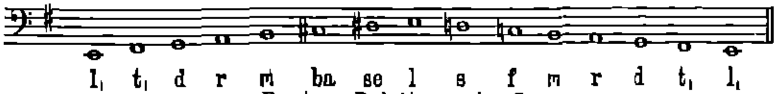
(2)



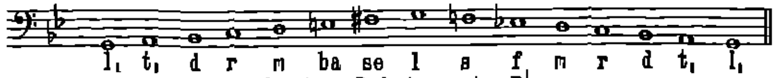
D minor. Relative major F



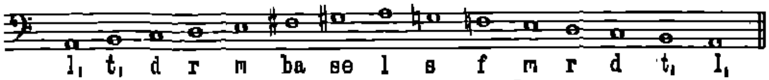
B minor. Relative major D



E minor. Relative major G



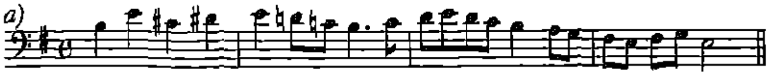
G minor. Relative major B♭



A minor. Relative major C

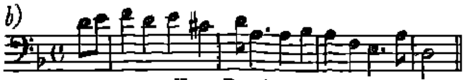
(3)

a)



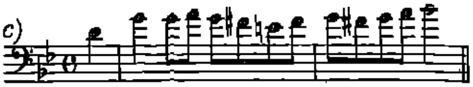
Key E minor

b)



Key D minor

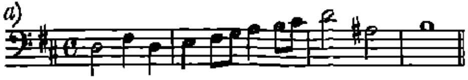
c)



Key G minor

(5)

a)



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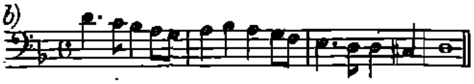

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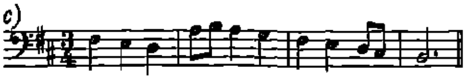

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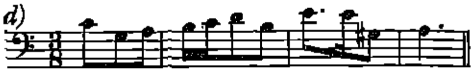

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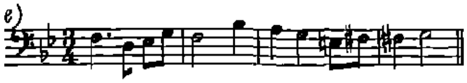

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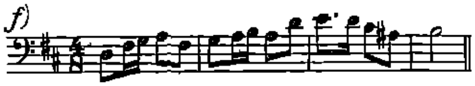

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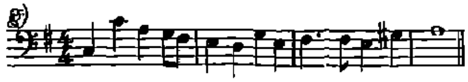

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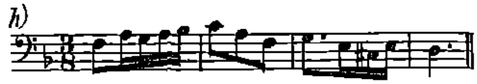

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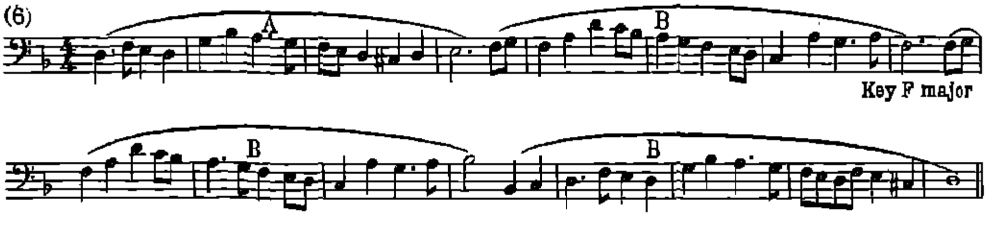
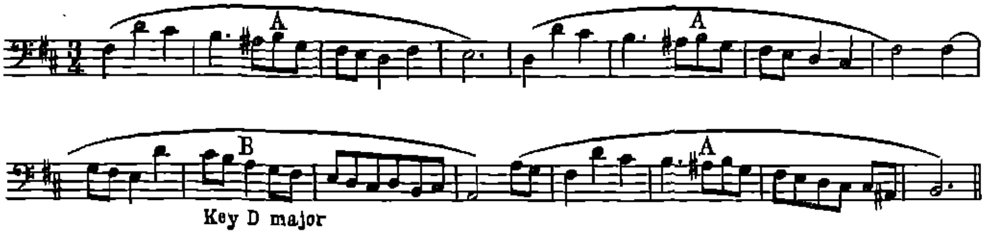


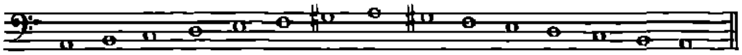
Key F major



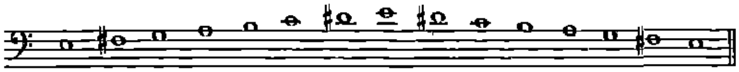
Key D major

Additional Exercises.

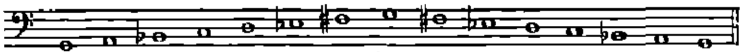
(1)



A minor

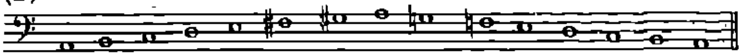


E minor

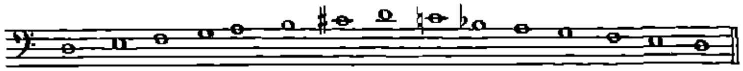


G minor

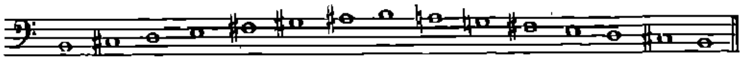
(2)



A minor



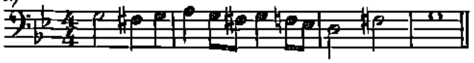
D minor



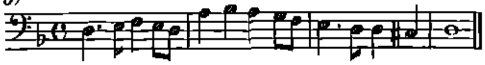
B minor

(3)

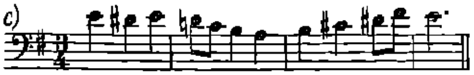
a)



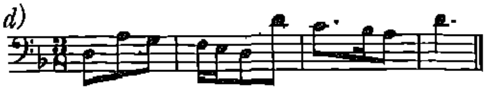
b)



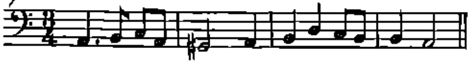
c)



d)



e)



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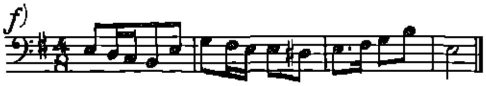

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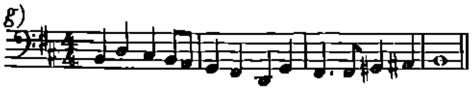

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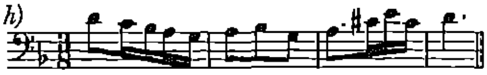
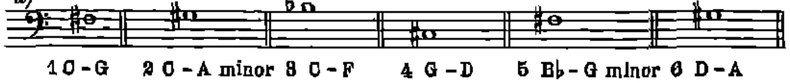


(4)

a)



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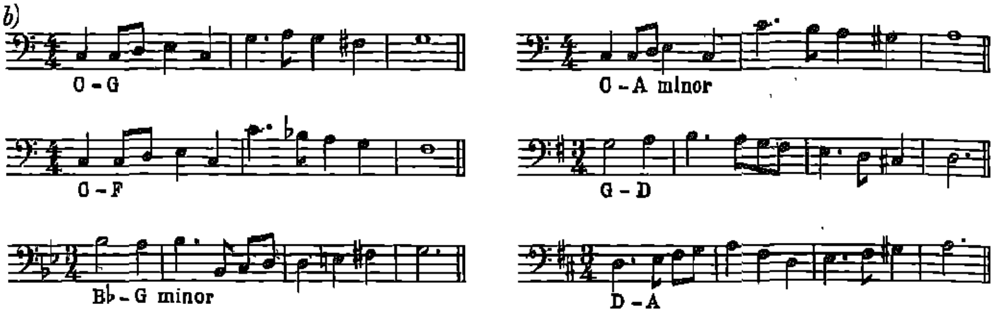
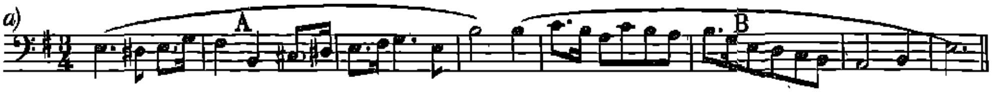


(5)

a)



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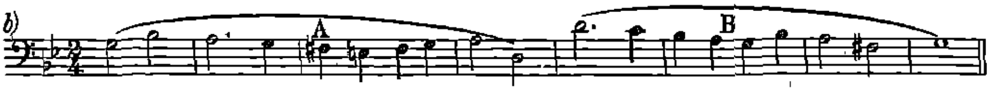

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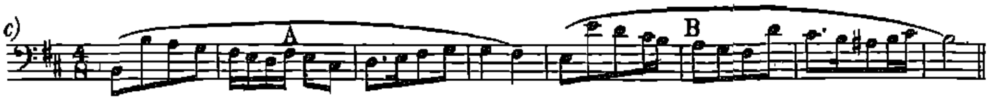

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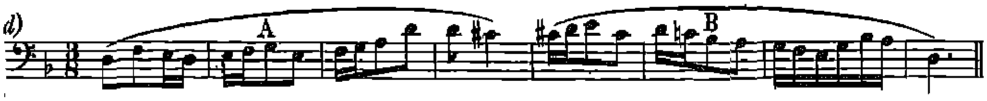
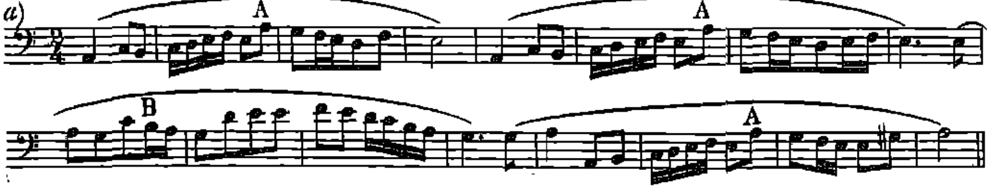


(6)

a)



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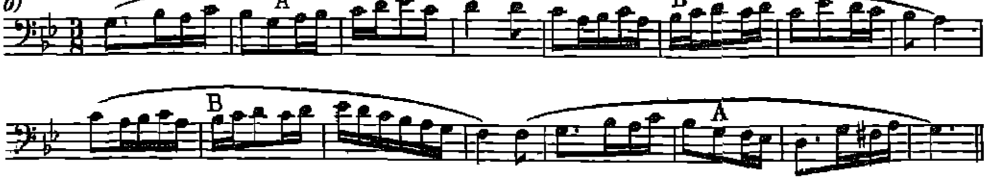


III. Simple and Compound Time.

A. Easy.

(1) In simple time the beat is divisible into two parts, and in compound it is divisible into three parts.

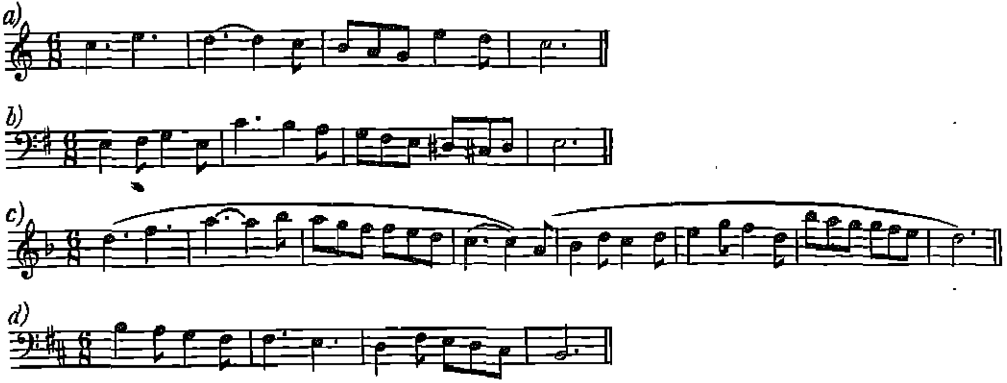
(2) $\frac{3}{4}$=simple. $\frac{4}{8}$=simple. $\frac{6}{8}$=compound. $\frac{2}{2}$=simple. $\frac{9}{8}$=compound. $\frac{12}{8}$=compound. $\frac{3}{2}$=simple.

(3) $\frac{4}{4}$=quadruple. $\frac{3}{8}$=triple. $\frac{6}{8}$=duple. $\frac{2}{4}$=duple. $\frac{12}{8}$=quadruple. $\frac{9}{4}$=triple. $\frac{3}{2}$=triple.

(4) $\frac{3}{8}$=simple triple. $\frac{9}{8}$=compound triple. $\frac{4}{4}$=simple quadruple. $\frac{6}{4}$=compound duple. $\frac{3}{2}$=simple triple. $\frac{12}{8}$=compound quadruple. $\frac{2}{4}$=simple duple.

(5) 1 beat, $\frac{1}{3}$rd beat, $\frac{2}{3}$rds beat, 2 beats.

(7)



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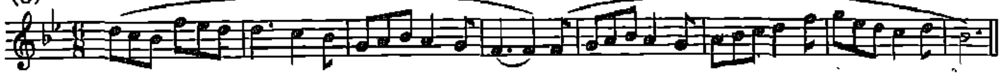


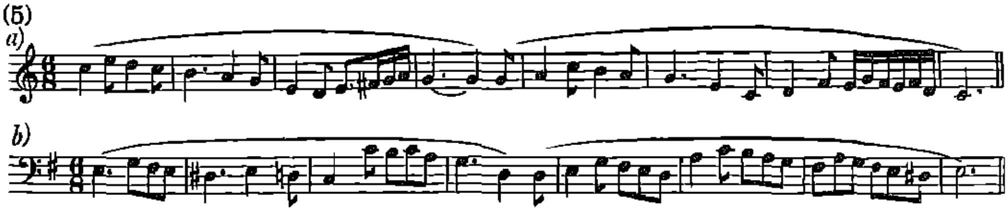
B. More Difficult.

(1) If the numerator of the time signature is 6, 9, or 12, the time is compound.

(2) Simple triple=$\frac{3}{4}$, $\frac{3}{2}$, $\frac{3}{8}$. Compound duple=$\frac{6}{8}$, $\frac{6}{4}$. Compound triple=$\frac{9}{8}$, $\frac{9}{4}$. Compound quadruple=$\frac{12}{8}$, $\frac{12}{4}$.

(3) $\frac{3}{4}$=♩, $\frac{6}{4}$=𝅗𝅥., $\frac{9}{8}$=♩., $\frac{2}{2}$=𝅗𝅥, $\frac{6}{2}$=𝅝., $\frac{12}{4}$=𝅗𝅥., $\frac{3}{1}$=𝅝, $\frac{12}{8}$=♩.

(5)



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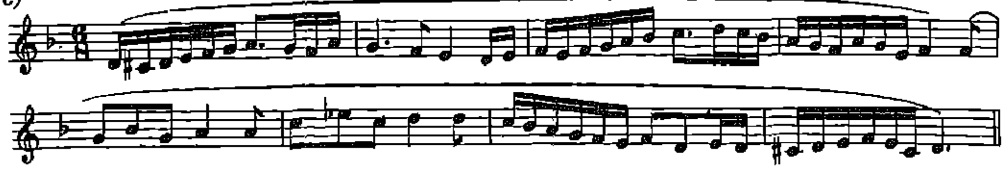

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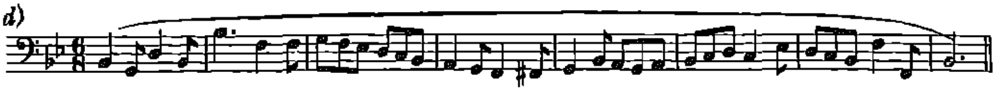

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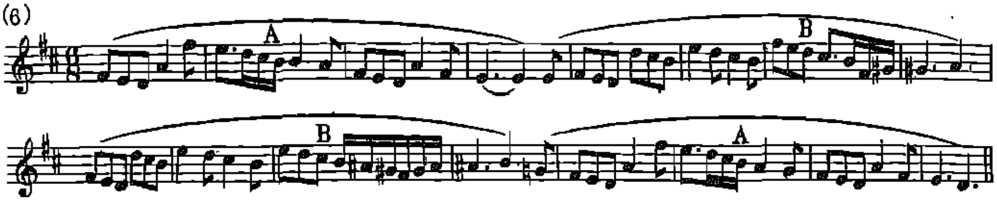


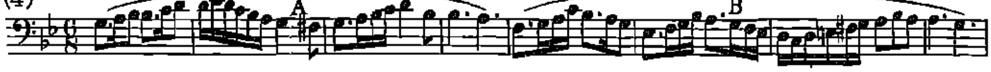
Additional Exercises.

(1) (*a*) $\frac{2}{2}$ or $\frac{3}{2}$. (*b*) $\frac{6}{8}$, $\frac{9}{8}$ or $\frac{12}{8}$. (*c*) $\frac{3}{8}$ or $\frac{4}{8}$. (*d*) $\frac{6}{4}$ or $\frac{9}{4}$. (*e*) $\frac{6}{16}$ or $\frac{9}{16}$.

(2) (*a*) 1 beat, $\frac{2}{3}$rds beat, 2 beats, $\frac{1}{3}$rd beat. (*b*) 1 beat, 2 beats, $\frac{1}{3}$rd beat, $\frac{2}{3}$rds beat.

(3) (*a*) $\frac{6}{16}$. (*b*) $\frac{3}{8}$. The notes are grouped according to the beat; therefore in the first case a ♪. equals one beat, and in the second a ♪ equals one beat.

(4)



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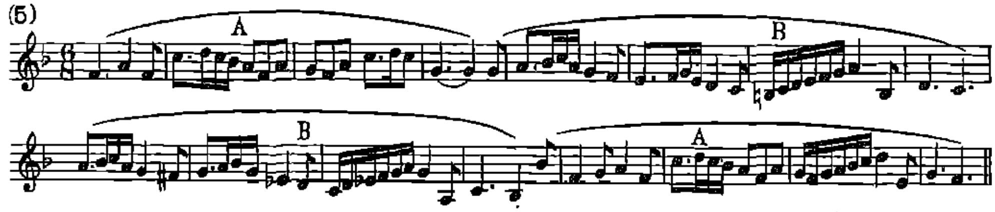

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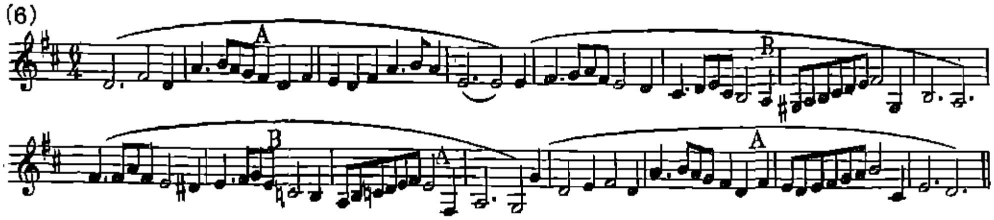


IV. Setting Words to Music—1

A. Easy.

(1)

a) $\frac{4}{4}$ Líttle bírd with |bósom réd, |Wélcome tó my |húmble shéd: ||
Coúrtly dámes of |hígh degrée |Háve no róom for |thée and mé. ||

b) $\frac{4}{4}$ The |Hárt, he lóves the |hígh wóod, The |Háre, he lóves the |híll;
The |Kníght, he lóves his |bríght swórd; The |Lády lóves her |wíll. ||

c) $\frac{4}{4}$ Thrée jolly géntlemen, in |cóats of réd |Róde their hórses |úp to béd. ||
Thrée jolly géntlemen |snóred till mórn, Their |hórses chámping the |gólden córn. ||

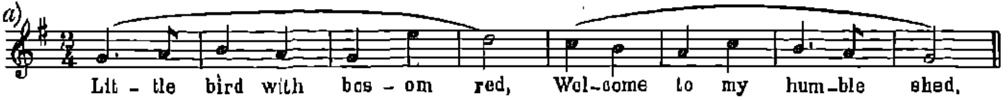
d) $\frac{4}{4}$ In |Háns' old míll his |thrée black cáts |Wátch the bíns for the |thiéving ráts. ||
|Whísker and cláw, they |croúch in the níght, Their |fíve éyes smoúldering |gréen and bríght. ||

N.B. The time signatures of all these might just as well be $\frac{2}{4}$. Then there would be twice as many bar-lines required.

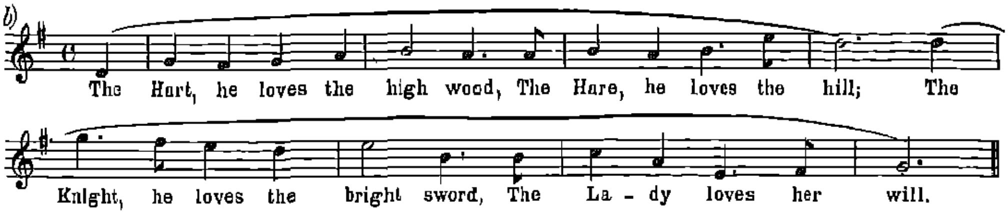
e) $\frac{3}{4}$ If |áll these young |mén were as |háres on the |moúntains,
Then |áll those pretty |máidens will get |gúns, go a-|húnting,
With |rí-fol-de-dee, |cál-al-de-day, |rí-fol-de-|dée.

(2)

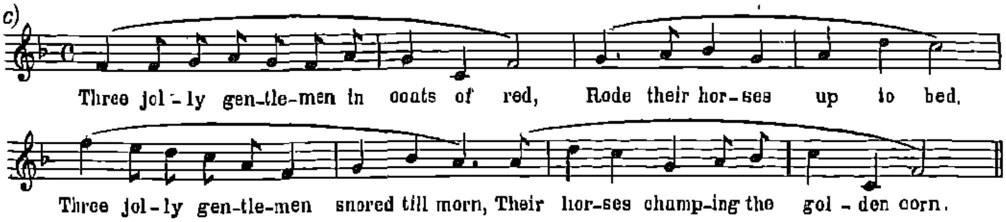
a)


Lit - tle bird with bos - om red, Wel-come to my hum-ble shed.

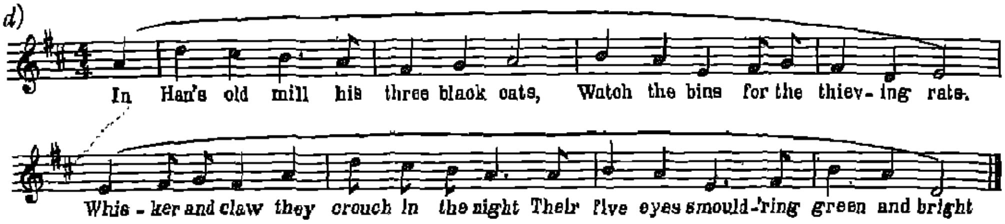
b)


The Hart, he loves the high wood, The Hare, he loves the hill; The
Knight, he loves the bright sword, The La - dy loves her will.

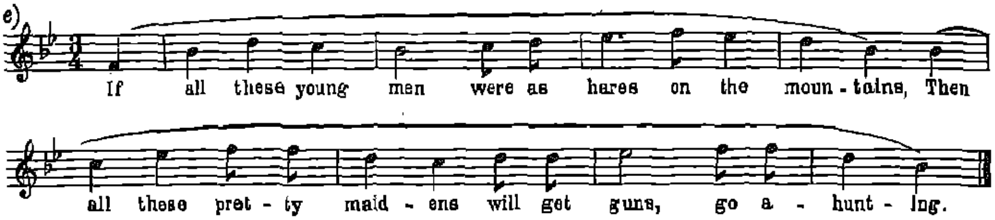
c)


Three jol - ly gen-tle-men in coats of red, Rode their hor-ses up to bed.
Three jol-ly gen-tle-men snored till morn, Their hor-ses champ-ing the gol - den corn.

d)

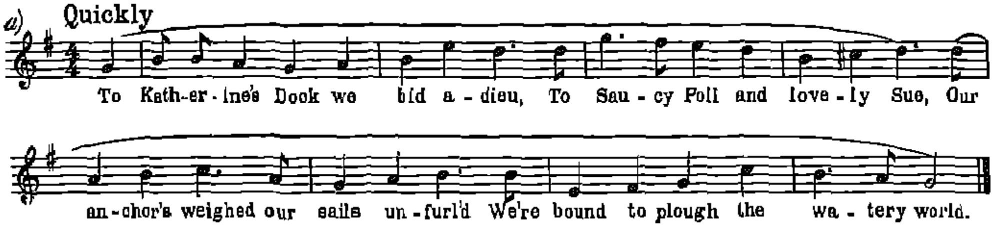

In Han's old mill his three black cats, Watch the bins for the thiev - ing rats.
Whis - ker and claw they crouch in the night Their five eyes smould - 'ring green and bright

e)

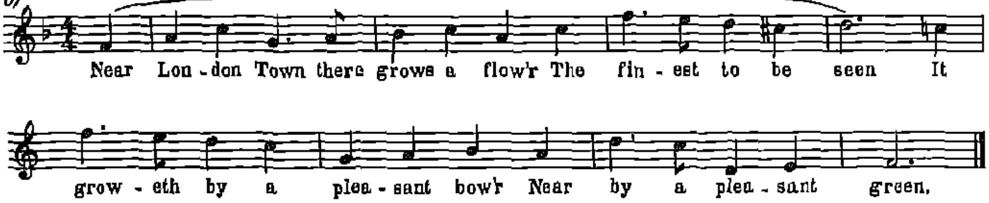

If all these young men were as hares on the moun - tains, Then
all these pret - ty maid - ens will get guns, go a - hunt - ing.

B. More Difficult.

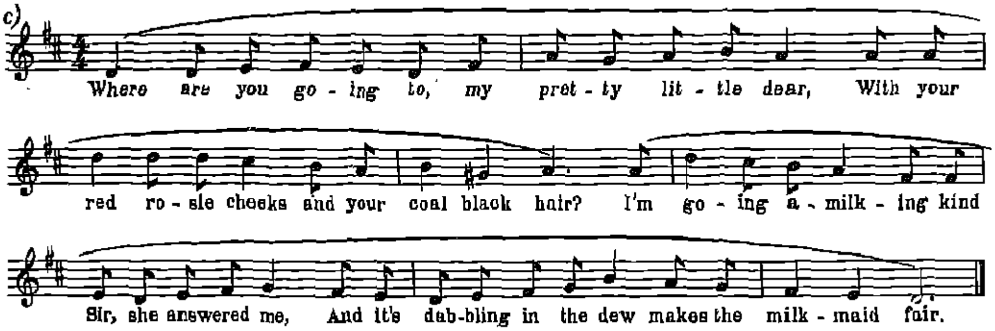
a)


Quickly
To Kath-er - ine's Dock we bid a - dieu, To Sau - cy Poll and love - ly Sue, Our
an - chor's weighed our sails un - furl'd We're bound to plough the wa - tery world.

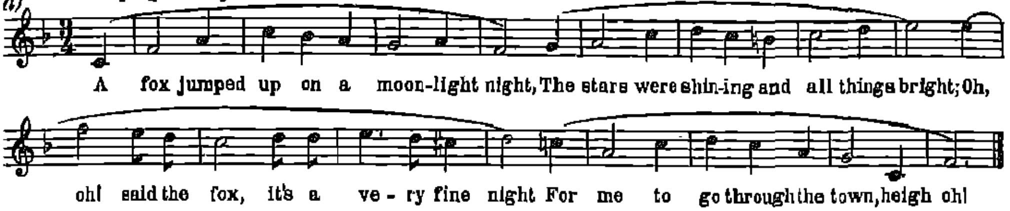
b)


Near Lon - don Town there grows a flow'r The fin - est to be seen It
grow - eth by a plea - sant bow'r Near by a plea - sant green.

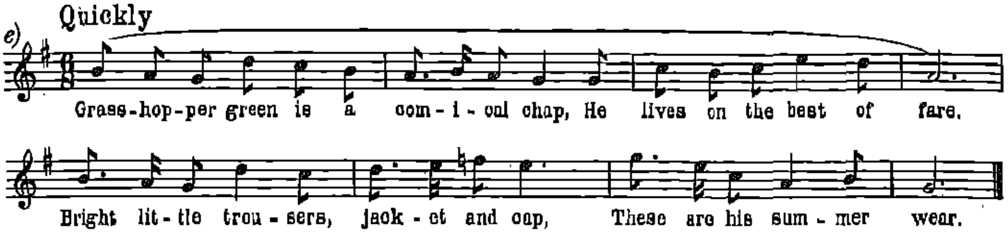
c)


Where are you go - ing to, my pret - ty lit - tle dear, With your
red ro - sie cheeks and your coal black hair? I'm go - ing a - milk - ing kind
Sir, she answered me, And it's dab-bling in the dew makes the milk - maid fair.

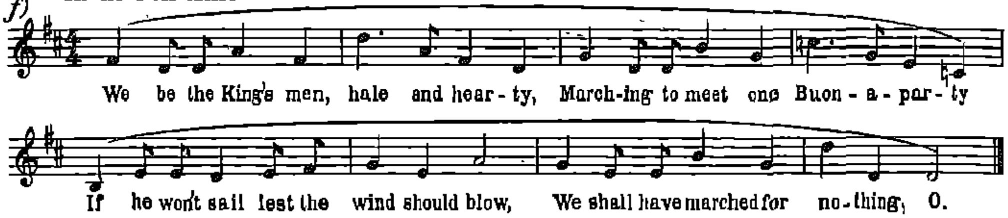
d) **Fairly quickly**


A fox jumped up on a moon-light night, The stars were shin-ing and all things bright; Oh,
oh! said the fox, it's a ve - ry fine night For me to go through the town, heigh oh!

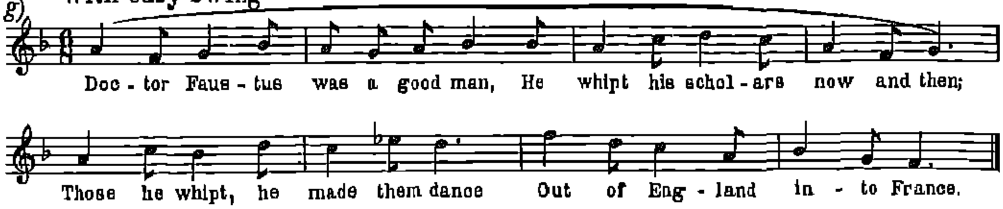
e) Quickly


Grass-hop-per green is a com - i - cal chap, He lives on the best of fare.
Bright lit - tle trou - sers, jack - et and cap, These are his sum - mer wear.

f) In march time

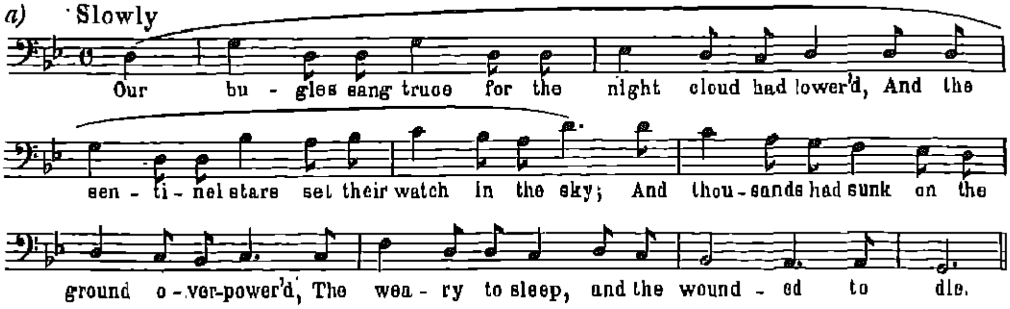

We be the King's men, hale and hear - ty, March-ing to meet one Buon - a - par - ty
If he won't sail lest the wind should blow, We shall have marched for no - thing, O.

g) With easy swing

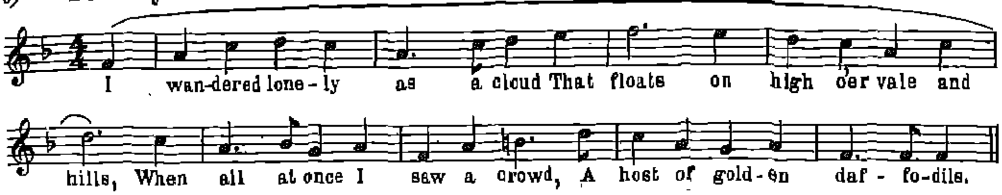

Doc - tor Faus - tus was a good man, He whipt his schol - ars now and then;
Those he whipt, he made them dance Out of Eng - land in - to France.

Additional Exercises.

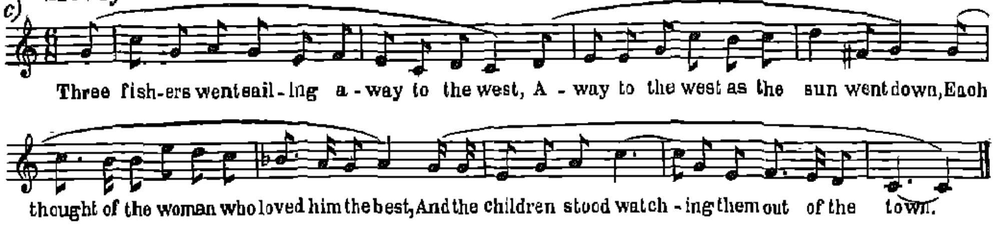
a) Slowly


Our bu - gles sang truce for the night cloud had lower'd, And the
sen - ti - nel stars set their watch in the sky; And thou - sands had sunk on the
ground o - ver-power'd, The wea - ry to sleep, and the wound - ed to die.

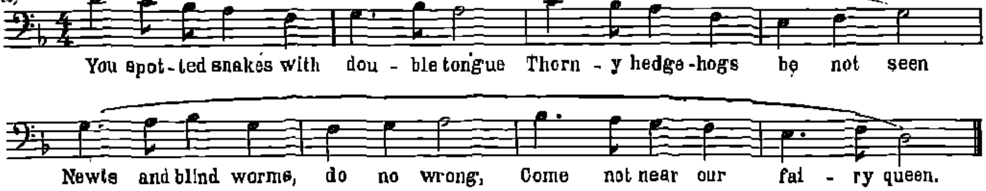
b) **Steadily**


I wan-dered lone-ly as a cloud That floats on high o'er vale and
hills, When all at once I saw a crowd, A host of gold-en daf-fo-dils.

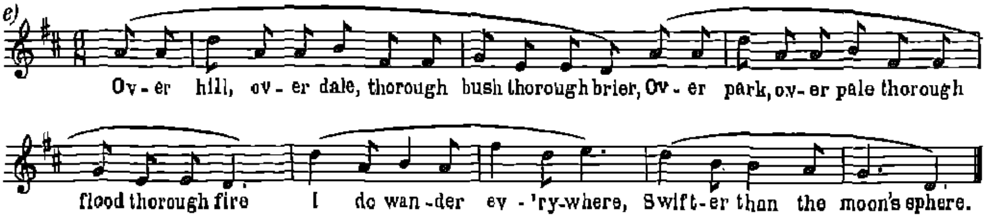
c) **Slowly**


Three fish-ers went sail-ing a-way to the west, A-way to the west as the sun went down, Each
thought of the woman who loved him the best, And the children stood watch-ing them out of the town.

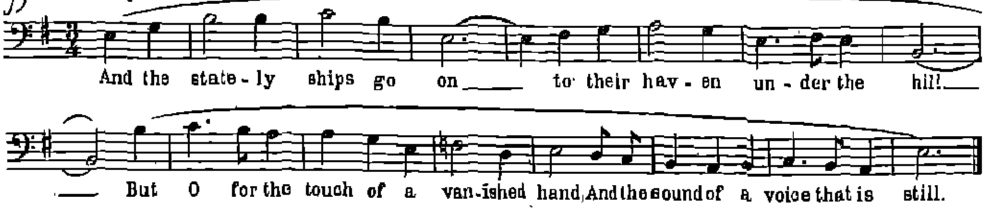
d)


You spot-ted snakes with dou-ble tongue Thorn-y hedge-hogs be not seen
Newts and blind worms, do no wrong, Come not near our fai-ry queen.

e)


Ov-er hill, ov-er dale, thorough bush thorough brier, Ov-er park, ov-er pale thorough
flood thorough fire I do wan-der ev-'ry-where, Swift-er than the moon's sphere.

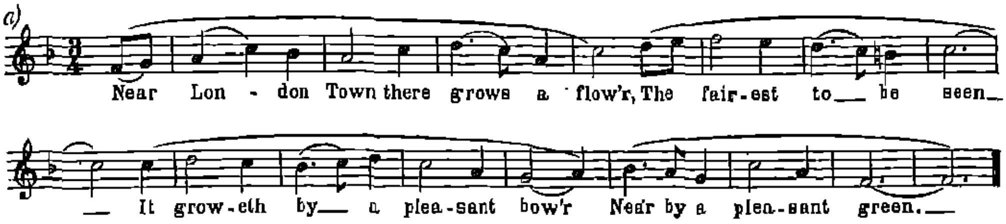
f) **Slowly**


And the state-ly ships go on to their hav-en un-der the hill
But O for the touch of a van-ished hand, And the sound of a voice that is still.

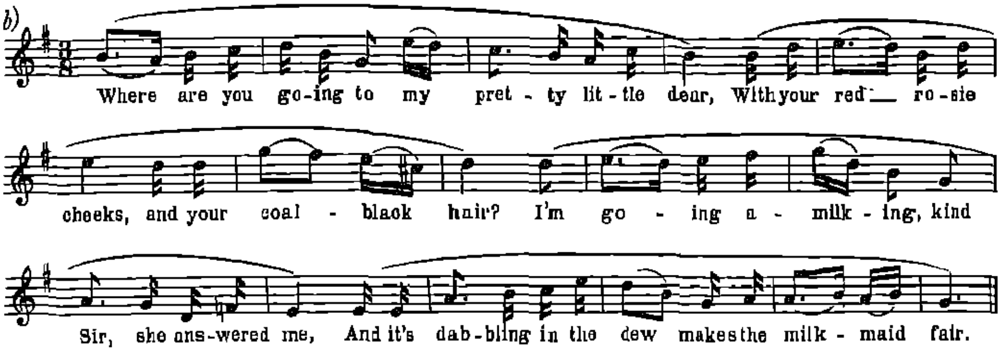
V. Setting Words to Music—2

A. Easy.

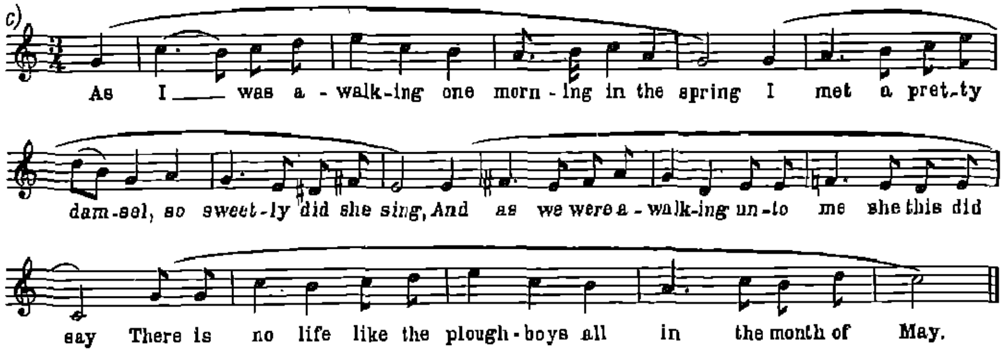
a)


Near London Town there grows a flow'r, The fair-est to__ be seen__
__ It grow-eth by__ a plea-sant bow'r Near by a plea-sant green.__

b)

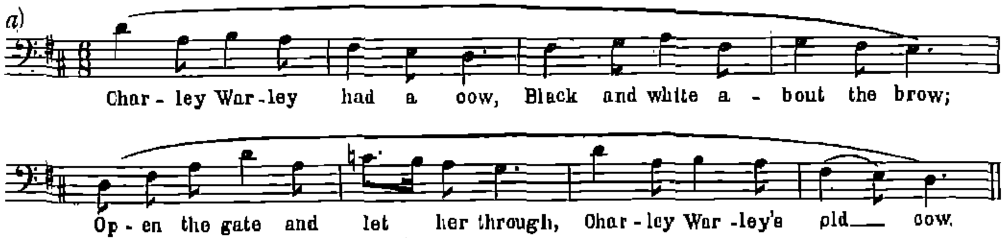

Where are you go-ing to my pret - ty lit-tle dear, With your red__ ro-sie
cheeks, and your coal - black hair? I'm go - ing a - milk - ing, kind
Sir, she ans-wered me, And it's dab-bling in the dew makes the milk - maid fair.

c)

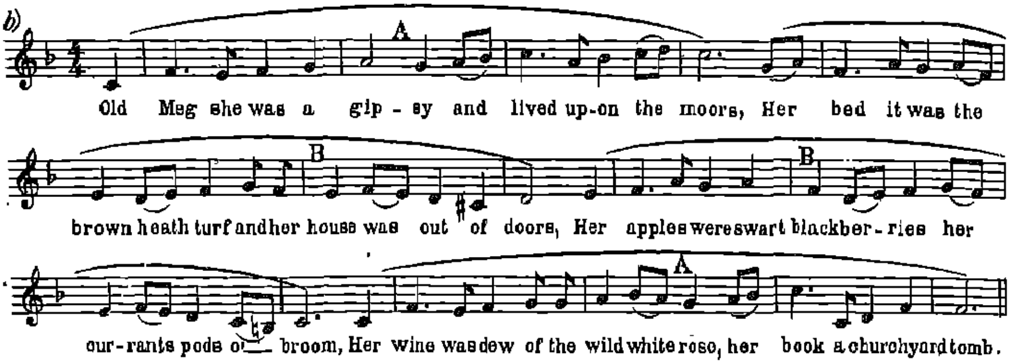

As I__ was a - walk-ing one morn - ing in the spring I met a pret-ty
dam-sel, so sweet-ly did she sing, And as we were a - walk-ing un-to me she this did
say There is no life like the plough-boys all in the month of May.

B. More Difficult.

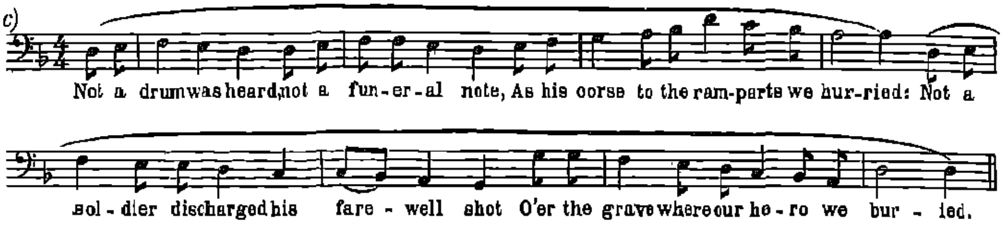
a)


Char - ley War-ley had a cow, Black and white a - bout the brow;
Op - en the gate and let her through, Char - ley War - ley's old__ cow.

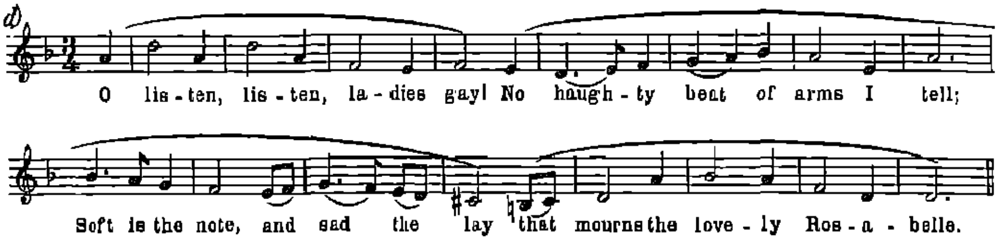
b)


A
B
B
A
Old Meg she was a gip - sy and lived up-on the moors, Her bed it was the
brown heath turf and her house was out of doors, Her apples were swart blackber - ries her
cur-rants pods o' broom, Her wine was dew of the wild white rose, her book a churchyard tomb.

c)


Not a drum was heard, not a fun-er-al note, As his corse to the ram-parts we hur-ried: Not a
sol - dier discharged his fare - well shot O'er the grave where our he - ro we bur - ied.

d)


O lis - ten, lis - ten, la - dies gay! No haugh - ty beat of arms I tell;
Soft is the note, and sad the lay that mourns the love - ly Ros - a - belle.

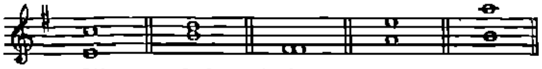
VI. Intervals

A. Easy.

(1) The difference in pitch between two notes.

(2) Octave, 5th, 2nd, 9th, 4th, 7th, unison.

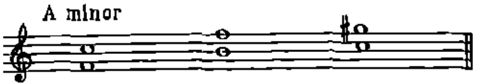
(3)



(4) Perfect 5th—C. 4th—D. Augmented 5th—D. Octave—C. 3rd—C. Diminished 5th—D. Perfect 5th—C. Diminished 5th—D. 6th—C. 7th—D.

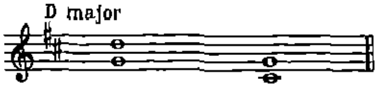
(5) Three ; perfect, augmented and diminished.

A minor



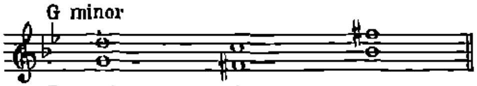
Perfect 5th. Diminished 5th. Augmented 5th.

D major



Perfect 5th. Diminished 5th.

G minor

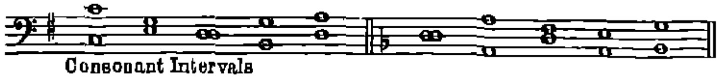


Perfect 5th. Diminished 5th. Augmented 5th.

B. More Difficult.

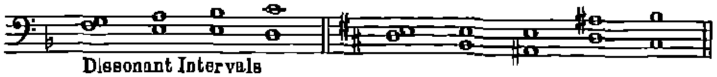
(1) A consonant interval is complete in itself; a dissonant interval needs another interval to complete it.

(2) Unison octave 3rd, perfect 5th, 6th



Consonant Intervals

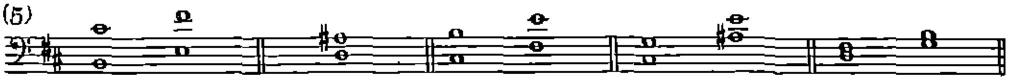
(3) 2nd, 4th, diminished 5th, augmented 5th, 7th.



Dissonant Intervals

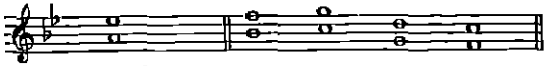
(4) (*a*) 7th—D. Perfect 5th—C. Perfect 5th—C. 6th—C. 7th—D. 10th—C. (*b*) Unison—C. 6th—C. 3rd—C. Diminished 5th—D. Augmented 5th—D. Perfe 12th—C. 9th—D. Diminished 5th—D.

(5)



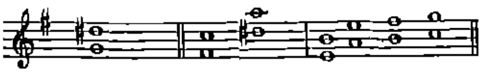
9ths. Augmented 5th. 7ths. Diminished 5th. 3rds.

(6) Two ; a diminished 5th on the leading note, and perfect 5ths on every other degree.

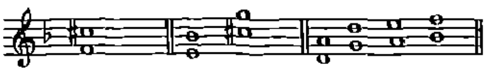


Diminished 5th. Perfect 5ths.

(7) Three ; an augmented on the mediant, diminished on the supertonic and leading note, and perfect on all the other degrees.

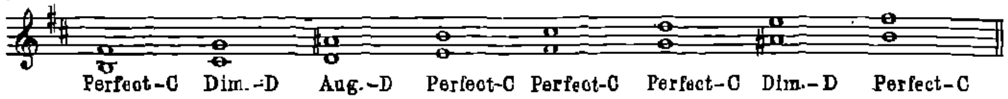


Augmented 5th. Dim. 5ths. Perfect 5ths.

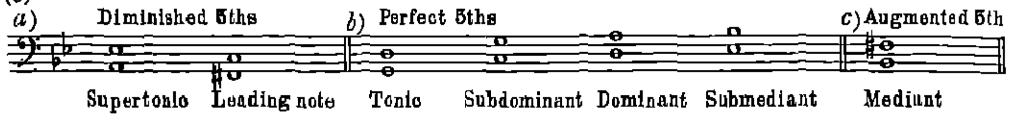


Augmented 5th. Dim. 5th. Perfect 5ths.

(8)

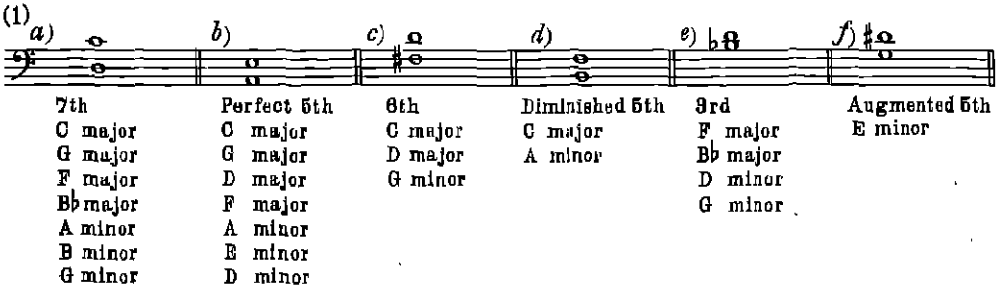


(9)



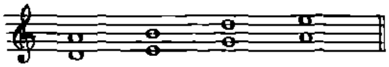
Additional Exercises.

(1)

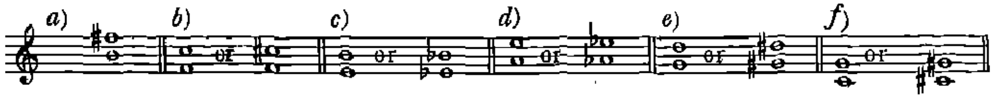


(2) (*a*) Diminished 5th, in A minor. (*b*) Augmented 5th, in B minor. (*c*) Perfect 5th, in E minor, A minor and B minor. The augmented 5th, (*b*), does not occur in any major key.

(3)



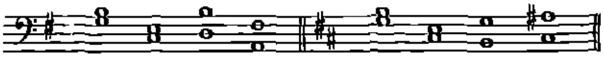
(4) (*a*) Consonant; all the others are dissonant.

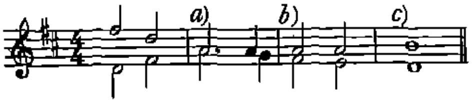


VII. Simple Part Writing

A. Easy.

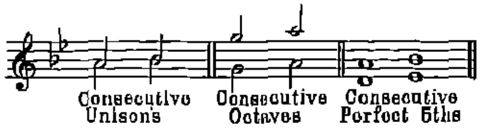
(2) 3rds and 6ths.





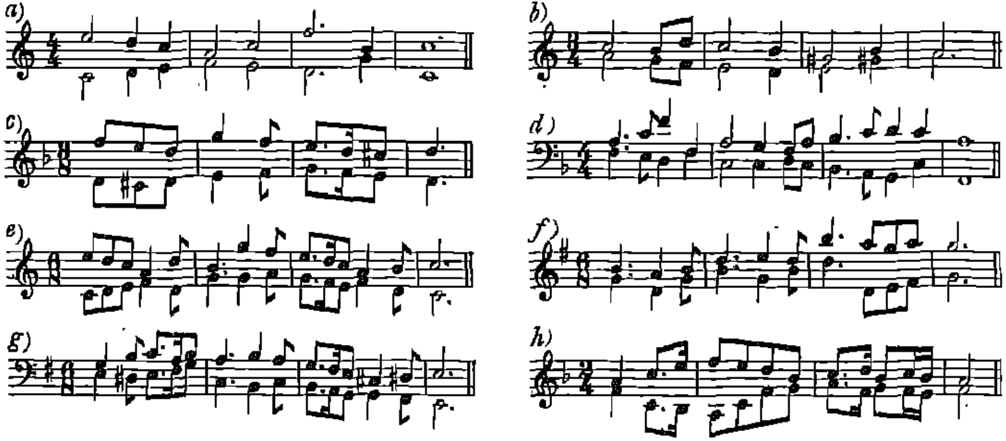
(*a*) Unison on the strong beat. (*b*) Too much oblique motion.
(*c*) Does not end on *doh* chord.

(4) Unisons, octaves and perfect 5ths.

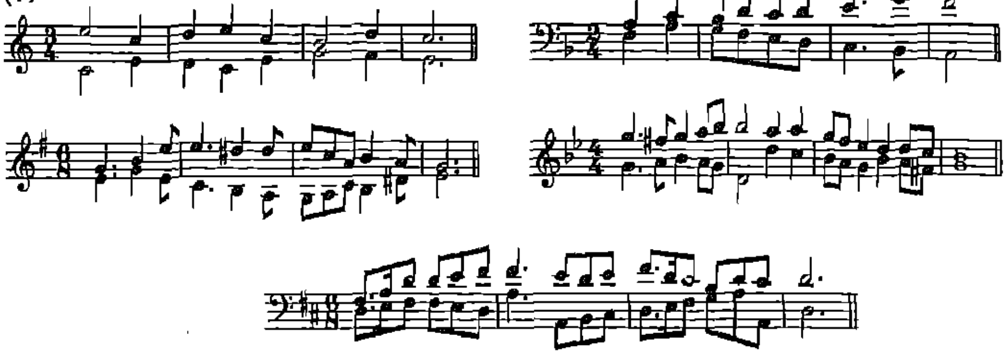


(5) Consecutive perfect 5ths, consecutive octaves, consecutive unisons.

(6)

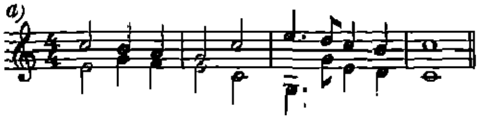


(7)

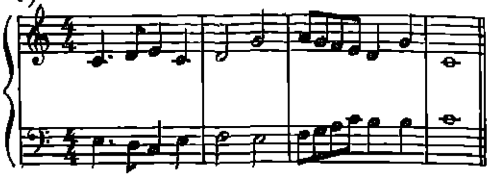


(8)

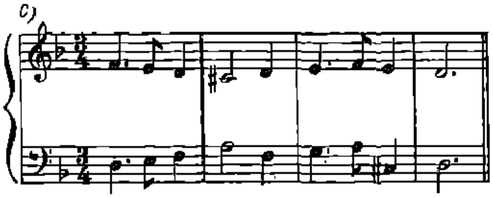
a)



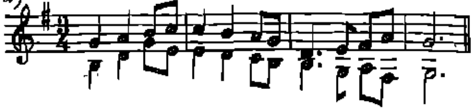
b)



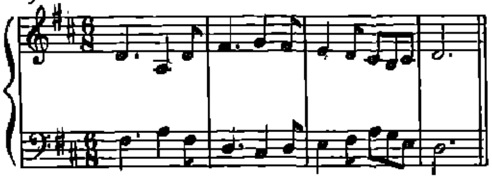
c)



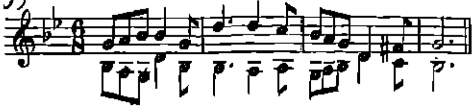
d)



e)

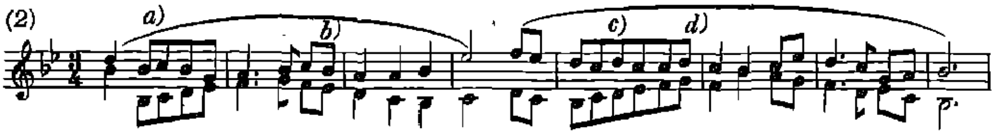


f)

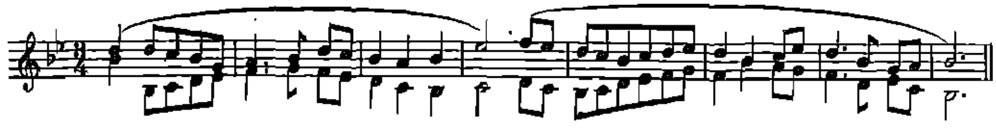


B. More Difficult.

(2)

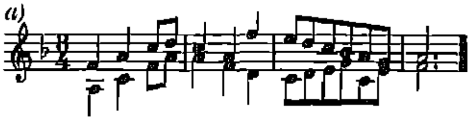


(a) Consecutive octaves, *(b) consecutive perfect* 5ths, *(c) consecutive octaves, (d)* consecutive perfect 5ths. The upper part in Bar 5 is monotonous.

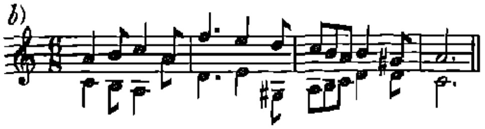


(3)

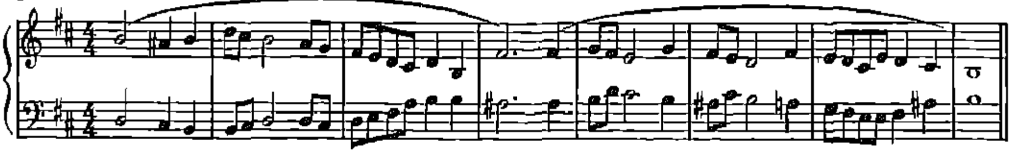
a)



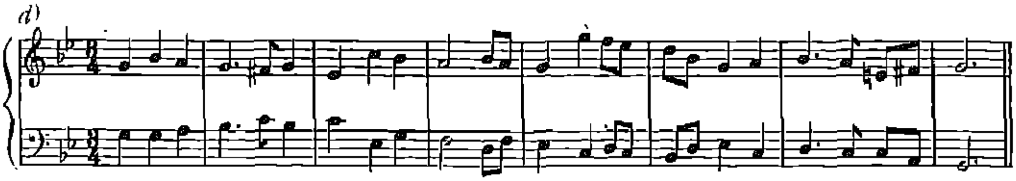
b)



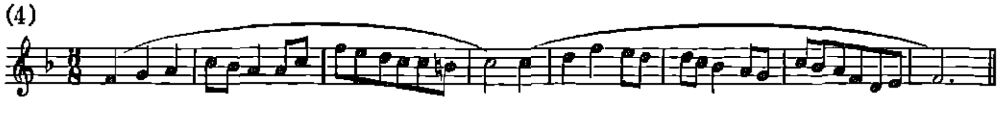
c)



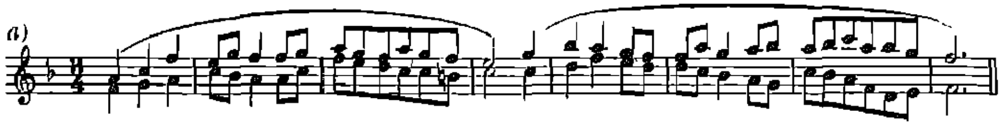
d)



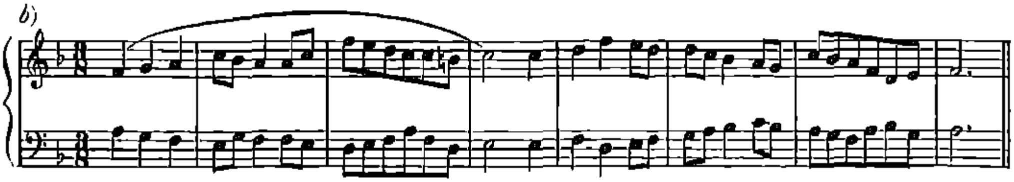
(4)



a)

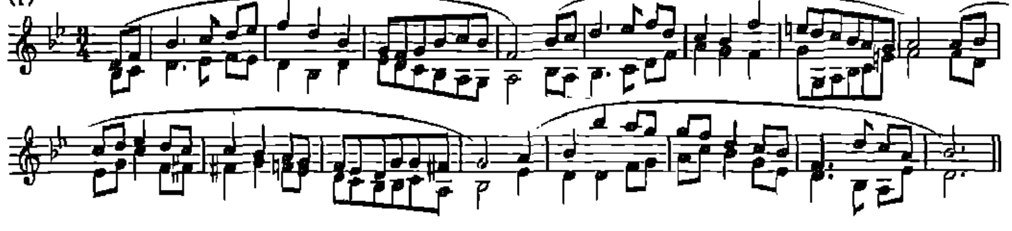


b)

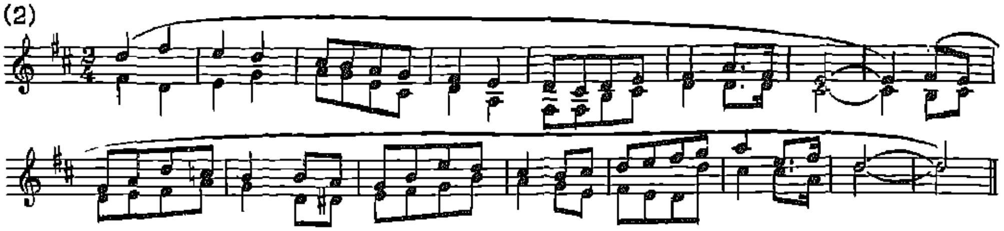


Additional Exercises.

(1)



(2)



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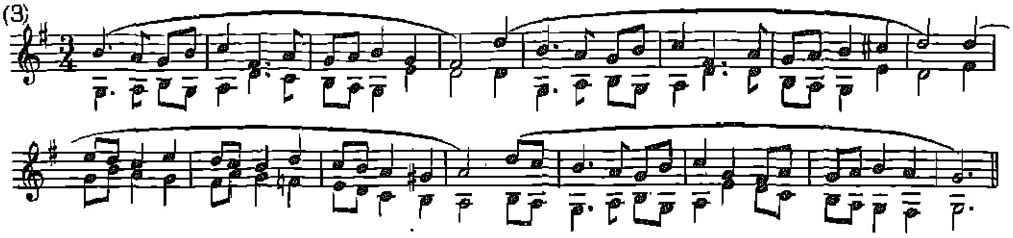

(4) See text.

VIII. Triads

A. Easy.

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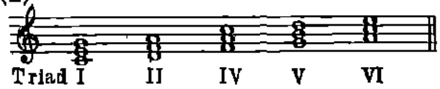

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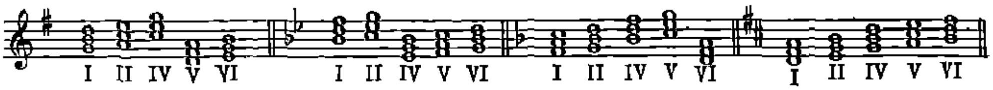

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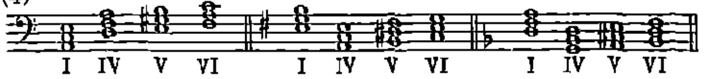
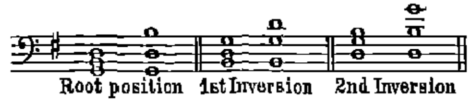
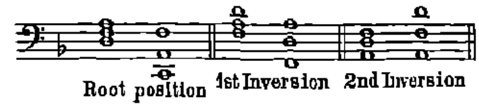


(5) (*a*) I, VI, VI, II, V, IV. (*b*) V, I, IV, II, VI. (*c*) I, VI, I, V, IV, IV.

(6) When any note but the root is in the bass. Two inversions.





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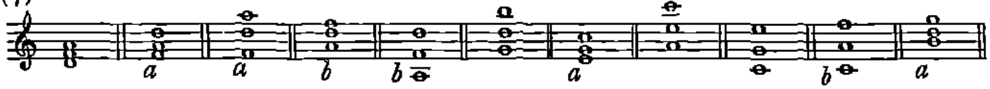

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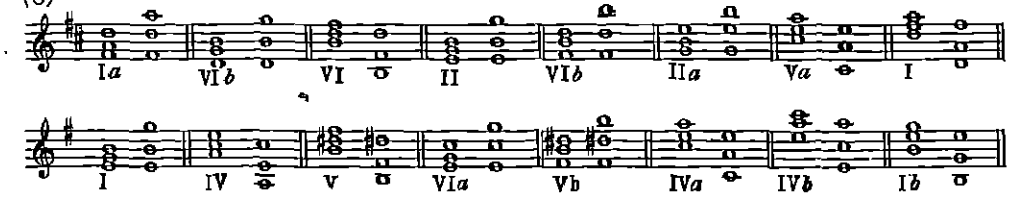
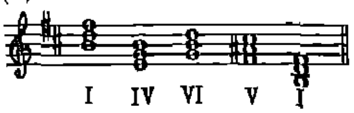


B. More Difficult.

(2)



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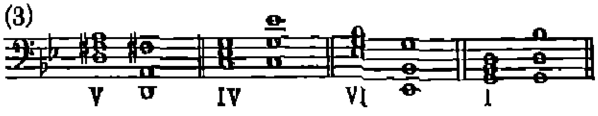
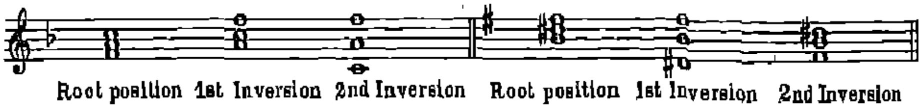


(4) (*a*) Key E minor. I, I, V, IV, V, VI. (*b*) Key G minor. VI, I, IV, V, V, VI, IV.
(*c*) Key B minor. V, IV, VI, I, V, IV, I.

(5) See text.

(6) Three positions; root, first inversion and second inversion; root in the bass makes root position, 3rd in the bass makes 1st inversion, 5th in the bass makes 2nd inversion.



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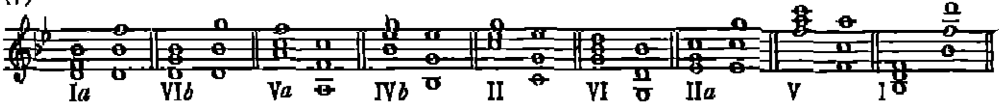

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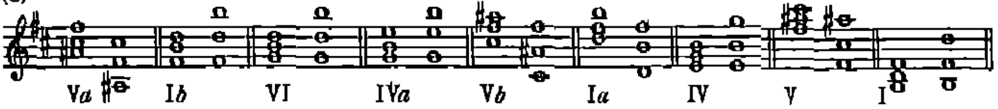
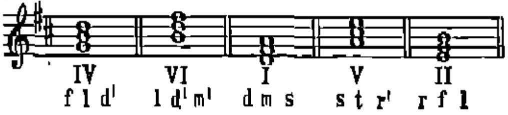


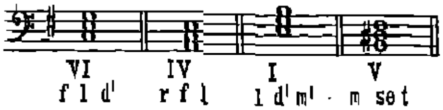
(9) (*a*) I, V, VI, IV, V, I. (*b*) I, V*a*, I, IV, I, I, II, I*a*, I, V.
(*c*) I, V, IV*a*, I, V, VI. (*d*) I, II*a*, I*b*, V, VI, II*a*, I.

Additional Exercises.

(1) See text.

(2)





LIST OF SONGS SUITABLE FOR USE IN THE SENIOR SCHOOL

There has been no attempt to make this list exhaustive: the songs contained in it are suggested as being of the type likely to be found most useful.

FOLK SONGS

TITLE	AUTHOR	PUBLISHER	NUMBER	PRICE
ENGLISH FOLK SONGS FOR SCHOOLS		Curwen		Voice only, 2 *s* Accpt. 6*s*.
SOLDIER, SOLDIER, WON'T YOU MARRY ME		Novello's School Songs	1581	2*d*.
OUR SHIP SHE LIES IN HARBOUR		"	1707	3*d*.
HEAVE AWAY, MY JOHNNY		"	1002	2*d*.
BRENNAN ON THE MOOR		"	966	2*d*.
DEAF WOMAN'S COURTSHIP		"	1587	2*d*.
SPANISH LADIES (FOLK SONGS OF ENGLAND)		Novello	1084	2*d*.
THE COASTS OF HIGH BARBARY		"	958	2*d*.

DESCANTS

GO NO MORE A-RUSHING		Novello's School Songs	1659	2*d*.
MY LADY GREENSLEEVES		"	1552	2*d*.
THE FLIGHT OF THE EARLS		"	1421	2*d*.
THE AGINCOURT SONG		Novello's School Music Review	125	2*d*.
SILENT, O MOYLE		"	422	2*d*.

UNISON SONGS

AS WHEN THE DOVE	*Handel*	Novello's School Songs	1755	3*d*.
AS TORRENTS IN SUMMER	*Elgar*	"	1676	3*d*.
IF FORTUNE YOU WOULD KNOW	*Bach*	"	1636	3*d*.
A PRAYER FOR THE KING	*Dyson*	"	1778	4*d*.
COME LET US ALL THIS DAY	*Bach*	"	1162	2*d*.
IT COMES FROM THE MISTY AGES	*Elgar*	"	1470	4*d*.
NYMPHS AND SHEPHERDS	*Purcell*	"	920	2*d*.
WHERE THE BEE SUCKS	*Humfrey*	"	1766	2*d*.
WHITHER	*Schubert*	"	670	2*d*.

UNISON SONGS—*continued*

TITLE	AUTHOR	PUBLISHER	NUMBER	PRICE
HARK, HARK THE LARK	*Schubert*	Novello's School Music Review	34	2*d*.
WATER PARTED	*Arne*	,,	284	2*d*.
WORSHIP	*Geoffrey Shaw*	Novello's Musical Times	967	3*d*.
BE STRONG	*Rowley*	,,	1048	3*d*.
THE MARKET PLACE	*Markham Lee*	Curwen	71860	4*d*.
I VOW TO THEE MY COUNTRY	*Holst*	,,	71632	4*d*.
LET US NOW PRAISE FAMOUS MEN	*Vaughan Williams*	,,	71619	4*d*.
LONDON BIRDS	*Geoffrey Shaw*	,,	71947	4*d*.
POLLY WILLIS	*Arne*	,,	71950	3*d*.
THE NIGHT TRAIN	*Rowley*	Arnold's Singing Class Music	381	4*d*.
PRAISE	*Dyson*	,,	29	3*d*.
THE SEEKERS	*Dyson*	,,	63	3*d*.
THE WONDERFUL DERBY RAM	*Howells*	,,	90	3*d*.
THE LORD PROTECTOR	*Taylor*	,,	396	3*d*.
THE MAD DOG	*Dunhill*	,,	60	3*d*.
YOU SPOTTED SNAKES	*Gibbs*	,,	61	3*d*.
THIS ENGLAND	*Wood*	Oxford University Press		4*d*.
COME ALL YE SONGSTERS	*Purcell*	,,		4*d*.
GAY ROBIN IS SEEN NO MORE	*Whittaker*	,,		4*d*.
FLOCKS IN PASTURES GREEN ABIDING	*Bach*	,,		3*d*.

TWO-PART SONGS

TITLE	AUTHOR	PUBLISHER	NUMBER	PRICE
MISTS BEFORE THE SUNRISE FLY	*Arne*	Curwen	71941	3*d*.
THE FROGGE AND THE MOUSE	*Martin Shaw*	,,	71518	6*d*.
THE SHIP OF DREAMS	*Rowley*	,,	71908	4*d*.
MEG MERRILIES	*Stanford*	,,	71415	6*d*.
DRAKE'S DRUM	*Coleridge Taylor*	,,	71053	6*d*.
VIKING SONG	*Coleridge Taylor*	,,	71307	4*d*.
TRIP AND GO	*Martin Shaw*	,,	71504	6*d*.
PRETTY CAROLINE	*Imogen Holst*	Novello's School Songs	1770	3*d*.
THE KING'S MEN	*May Sarson*	,,	1704	2*d*.
NOW ON LAND AND SEA	*Handel*	,,	1596	3*d*.
CLOUDS O'ER THE SUMMER SKY	*Holst*	,,	760	2*d*.
SONG OF THE SHIP-BUILDERS	*Holst*	,,	1087	3*d*.
IN PRAISE OF MAY	*Ireland*	,,	1015	3*d*.
GIPSY DANCE	*German*	Novello's Two-part Songs	297	4*d*.
SPINNING SONG	*Wagner*	,,	273	4*d*.

TWO-PART SONGS—*continued*

TITLE	AUTHOR	PUBLISHER	NUMBER	PRICE
THE WITCH	*Thiman*	,,	260	3*d.*
ROLLING DOWN TO RIO	*German*	,,	218	4*d.*
YOU SPOTTED SNAKES	*Mendelssohn*	,,	213	4*d.*
EVENSONG SONG	*Ireland*	,,	162	4*d.*
WELCOME THOU WHOSE DEEDS CONSPIRE	*Handel*	Novello's School Songs	217	2*d.*
O LOVELY PEACE	*Handel*	,,	167	2*d.*
COME, EVER SMILING LIBERTY	*Handel*	,,	175	2*d.*
PLUCK YE ROSES	*Schumann*	,,	177	3*d.*
THE JOVIAL BEGGAR	*Dunhill*	Arnold's Singing Class Music		4*d.*
BRITAIN NOW	*Purcell*	Oxford University Press		3*d.*
FROM TYRANT LAWS	*Arne*	,,		4*d.*
BROTHER JAMES'S AIR	*Gordon Jacob*	,,		4*d.*
BEAUTY LATELY	*Handel*	,,		4*d.*
A FAIRY SONG	*John Vine*	,,		3*d.*

BOOKS OF SONGS

SONGS OF THE MASTERS	Curwen	Voice 1*s.* 6*d.* Accpt. 6s.
SONGS FROM SHAKESPEAREAN PLAYS, PART I	,,	Voice 6*d.* Accpt. 3*s.* 6*d.*
SONGS FROM SHAKESPEAREAN PLAYS, PART II	,,	Voice 9*d.* Accpt. 3*s.* 6*d.*
ENGLISH FOLK SONGS FOR SCHOOLS	,,	Voice 2*s.* Accpt. 6s.
A HERITAGE OF SONG	,,	Voice 1*s.* Accpt. 5*s.*
STANDARD UNISON SONGS, PART I	,,	Voice 6*d.* Accpt. 3*s.* 6*d.*
STANDARD UNISON SONGS, PART II	,,	Voice 6*d.* Accpt. 3*s.* 6*d.*
THE NATIONAL SONG BOOK	Boosey	Voice 2*s.* Accpt. 6*s.*
THE CLARENDON SONG BOOKS	Oxford University Press	Voice 6*d.* Accpt. 2*s.* 6*d.* per volume

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GLOSSARY

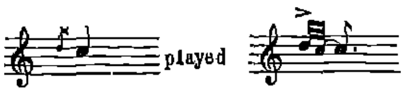
Below are given brief definitions of some of the more common musical terms. Fuller definitions, and explanations of terms not contained in this list will be found in Grove's "Dictionary of Music and Musicians."

A capella.—In the church style.

A capriccio.—At the caprice. According to the performer's fancy.

Accelerando.—Increasing the speed.

Acciaccatura.—Crushing note—



Accidental.—Sharps, flats or naturals introduced during the course of music.

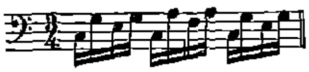
Adagio.—Slowly. The slow movement of a sonata or symphony is sometimes called the *Adagio.*

Ad libitum.—At will.

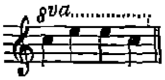
Agitato.—In a hurried, restless manner.

Air.—Melody, tune. See *Aria.*

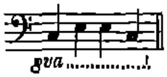
Alberti Bass.—An accompaniment of arpeggios and broken chords. Commonly used in the 18th century—



All'8va alta.—An octave higher. Shown—



All'8va bassa.—An octave lower. Shown—



Allargando.—Broadening. Getting slower.

Allegretto.—Quickly, but not as quickly as *Allegro.*

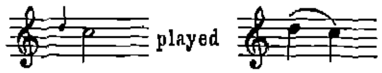
Allegro.—Quickly and lively.

Allemande.—A dance in duple time.

A piacere.—At pleasure, as regards the time.

Assai.—Very.

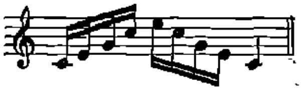
Appoggiatura.—A leaning note—



Its performance depends to some extent upon the period and the context of the music.

Aria.—A tune or melody, but on a bigger scale than the form usually suggested by the term *air.* Good examples are "Why do the Nations" and "He shall feed his flock" from "Messiah."

Arpeggio.—In the style of a harp—



A tempo.—In time. Used after the time has been varied from the normal.

Attacca.—Proceed at once. No pause.

Augmentation.—A device common in fugues. Writing the subject in longer notes. See *Diminution.*

Bagatelles.—Short sketches. Beethoven wrote a number of such pieces.

Ballad.—A narrative song or cantata. Sometimes used to mean a popular song.

Ballet (pronounce the "et").—A song of the madrigal type, with a "fal la" chorus. A favourite form with the lutenist composers of the 16th and 17th centuries.

Band.—A section of an orchestra; e.g., string, wood wind, brass or percussion.

Barcarolle.—Boating song. Rhythm of rowing. Good example in "Tales of Hoffmann," by Offenbach.

Baritone.—The male voice, between *Bass* and *Tenor.* See *Human Voice.*

Bass.—The lowest type of male voice. See *Human Voice.*

Bassoon.—The bass instrument of the wood wind department of the orchestra.

Berceuse.—Cradle song. Chopin wrote an example, Op. 57, which is well known.

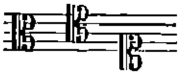
Binary Form.—A form in music based on two principal ideas or subjects. A simple example is "Barbara Allen." Most of Bach's "Inventions" are in this form. See *Ternary Form.*

Bis.—Twice. Repeat.

Bolero.—A Spanish dance in $\frac{3}{4}$ time. A famous modern example is that by Ravel.

Breve.—The longest note in common use to-day. In an older system of notation it was the shortest note, hence its name, "brief," "short."

C Clef.—A sign to mark the position on the stave of middle C—



Cadence.—The end of a phrase. Cadences are analagous to punctuation in English. Skill is needed in their use so that there is sufficient variation in the strength and importance of the endings of the phrases.

1. *Perfect* (*Authentic*) *Cadence* or *Full Close.* From the dominant chord to the tonic chord.

2. *Imperfect Cadence* or *Half Close.* Ends on the dominant chord.

3. *Plagal Cadence.* From the subdominant chord to the tonic chord. The "Amen" at the end of a hymn is usually a plagal cadence.

4. *Interrupted Cadence.* The dominant chord is played and then the tonic chord is expected to make a *Perfect Cadence,* but another chord, frequently the submediant, is played instead.

Cadenza.—A florid passage at the end of a piece. It is to be found frequently in the first movement of concertos by Beethoven and Brahms.

Calando.—Becoming quieter and slower.

Canon.—A composition in which a passage appearing in one part, appears also in another part after a brief rest. Examine the treble and tenor parts in the hymn tune called "Tallis' Canon." See *Round.*

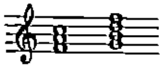
Cantabile.—In a singing style.

Cantata.—Literally "a singing piece." It originally meant a work for solo voice with accompaniment, consisting of a mixture of recitative and aria, and was first used in about 1600. It now means choral work, an oratorio of small dimensions, though the words may be sacred or secular.

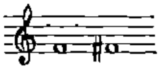
Catch.—A kind of round or canon for three or four voices. The bringing together of the different words as sung by the various singers produces new and subtle meanings. Many examples were produced in the 17th and 18th centuries.

Choral.—A German hymn tune; e.g., "Nun danket;" "Wachet auf."

Chord.—A combination of notes to be sung or played together—

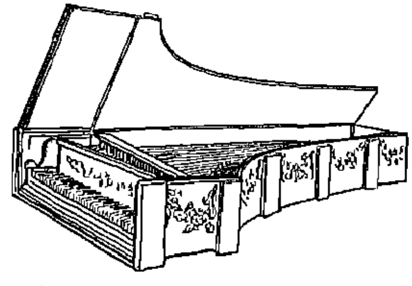


Chromatic.—Contrary of diatonic. Refers to "colour"—



These two notes are both F, but the second is of a different colour from the first.

Cimbalo or *Cembalo.*—A kind of harpsichord. See *Pianoforte.*



Clarinet.—A reed instrument in the wood wind section of the orchestra.

Clavecin.—French name for harpsichord.

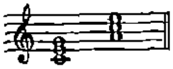
Clavier.—Keyboard of the organ or pianoforte.

Clef.—A sign (𝄞, 𝄢, 𝄡) to show which part of the Great Stave is being used.

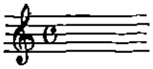
Coda.—A tail piece. A passage, frequently of some length, at the end of a piece, bringing it to a strong conclusion. It was considerably developed by Beethoven in his sonatas and symphonies, and has been used extensively by most composers since his time. The last 42 bars of the first movement of Beethoven's "Sonata in C Minor" ("Moonlight") form a coda.

Coloratura.—Style of vocal music containing runs and florid passages; e.g., "Rejoice greatly" from Handel's "Messiah."

Common Chord.—A note together with the major or minor 3rd and perfect 5th above—



Common Time.—Frequently used to express 4/4 time, and shown—



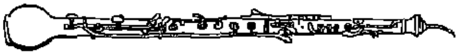
Compound Time.—Time in which the beats are divisible into thirds and not into halves and quarters as in simple time. In compound time the numerator of the time signature is 6, 9, or 12. See *Simple Time.*

Concerto.—A composition in several movements for one or more solo instruments and orchestra. See *Sonata; Symphony.*

Concord.—An interval complete in itself and requiring nothing to follow it. Sometimes called *consonance.* See *Discord.*

Contralto.—The lowest form of female voice. See *Human Voice.*

Cor Anglais.—A wood wind instrument, similar to an oboe.



Corno.—Horn.

Corona.—A pause. Shown—𝄐

Crescendo.—Becoming louder. Shown—cresc: or 𝆒

Crooks.—Small metal tubes used in trumpets and horns for altering the key, before the modern valve instruments were invented.

Da Capo.—Repeat from the beginning. Shown—D.C. Many of Handel's arias are called "Da Capo Arias" because the last section is not written out—the singer is merely told to repeat the first section *Da Capo.*

Dal Segno.—Repeat from the sign, 𝄋

Descant.—A counter melody to be sung above a given tune.

Diapason.—A complete octave. The most important and characteristic quality of organ tone.

Diatonic.—"Through the tones." Containing no chromatic notes. The tunes "St. Anne" and "Tallis' Canon" are diatonic. Every note used is in the scale or key of the tune.

Diminuendo.—Becoming softer. Shown—dim: or 𝆓

Diminution.—A device common in fugues. Writing the subject in shorter notes. See *Augmentation.*

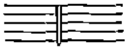
Discord.—An interval or chord needing another interval or chord to resolve it; e.g., all fourths and sevenths are discords; sometimes called a *dissonance.*

Dolce.—Softly and sweetly.

Dolore.—Sadly.

Dominant.—The fifth degree of the scale, which is the most important note after the tonic or key note.

Double Bar.—Two vertical lines across the stave to mark the end of a piece or a section of it—



Double Bass.—The lowest string instrument in the orchestra.

Duet.—A composition for two performers. Other terms of this type are, *trio, quartet, quintet, sextet, septet, octet,* and *nonet.*

Duple Time.—Time with two beats in each bar.

Enharmonic.—Having a change of notation, but no change of pitch; e.g., F ♯ G ♭.

Entr'acte.—Music played between the acts of an opera; e.g., "Rosamond," by Schubert.

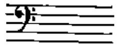
Episode.—A passage in a fugue between the entries of the subject.

Equal Temperament.—The modern system of tuning keyboard instruments by which the octave is divided into 12 equal semi-tones. See *Just Intonation.*

Etude.—A study. A composition for developing a particular branch of technique. Chopin's Etudes, in addition to this quality, have great musical and artistic value.

Extemporisation.—Creating and performing simultaneously. Improvisation.

F Clef.—The sign to show that the lowest five lines of the Great Stave are in use—



. F is on the fourth line.

Faux bourdon.—Literally "false bass." An early system of harmonisation. For examples see "English Hymnal" and "Songs of Praise."

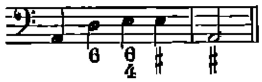
Fagotto or Bassoon.—A reed instrument used in the orchestra.

Fantasia.—A composition in no fixed style or form. Its shape is determined by the fancy; e.g., Vaughan Williams' "Fantasia on Christmas Carols."

Fermata.—A pause. Shown—𝄐

Fifteenth.—The double octave.

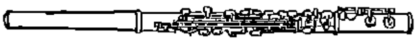
Figured Bass.—A bass, under which figures were placed to denote the chords with which it is to be harmonised—



Many of Handel's accompaniments were written in this way.

Flat.—A sign (♭) to lower a note by one semitone.

Flute.—A wood wind instrument of the orchestra.



Form.—The shape in which music is presented. Forms having special characteristic features have been given particular names; e.g., *fugue, sonata form, menuet and trio form, canon*, etc.

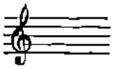
Forte.—Loudly. Shown—*f*.

Fortissimo.—Very loudly. Shown—*ff*.

Fugue.—A contrapuntal form of music, based on one or two short themes called the subject. See Bach's "48 Preludes and Fugues for the Well-Tempered Clavier."

Full Score.—The book used by the conductor, containing all the parts to be sung or played by all the performers. The music used by individual performers is called a "part." The complete copy of all the vocal parts is called the "vocal score."

G Clef.—The sign used to show that the top five lines of the Great Stave are in use—



. G. is on the second line.

Gamut.—Scale or compass.

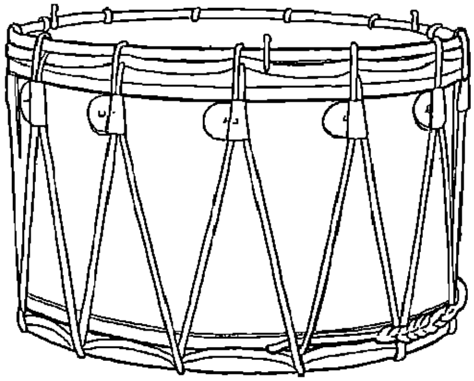
Gavotte.—A lively, yet dignified, dance tune.

Giusto.—Suitable, correct.

Glee.—Unaccompanied vocal music, usually for male voices, with *one* voice to each part. See *Catch, Madrigal, Part Song.*

Grace Notes.—Ornamental and decorative notes.

Gran cassa.—Big Drum. See *Tympani.*



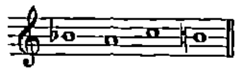
Grave.—Very slowly and solemnly.

Great Stave.—A series of eleven lines on which all the notes from bass G to treble F may be written. Owing to the difficulty of reading from it, the middle line is removed, and there remain the two staves of 5 lines familiar in pianoforte music.

Grosso.—Great; full; grand; e.g., "Concerto grosso," by Handel.

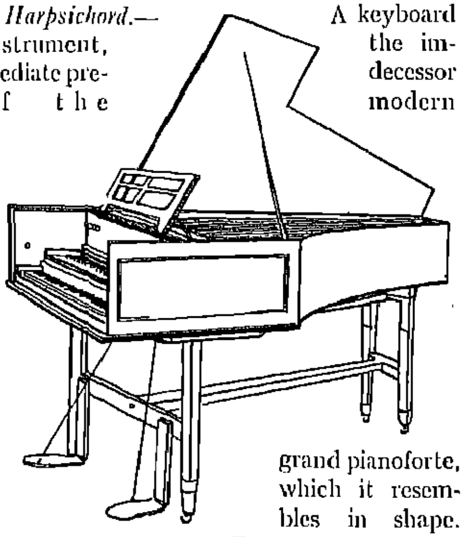
Ground Bass.—A short bass phrase repeated a number of times, over which different melodies or harmonies are written; e.g., "Dido's Lament," by Purcell, and the "Crucifixus" in Bach's "Mass in B Minor." See *Passacaglia.*

H.—German name for the note B natural. Some composers, including Schumann, have written works on the notes B.A.C.H. as an act of homage to the great master. In German B denotes our B flat.

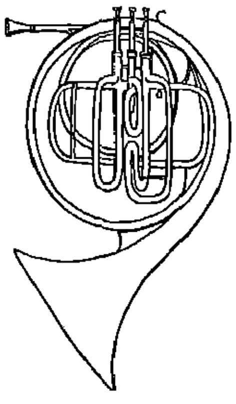


Half Close.—A cadence ending on the dominant chord. See *Cadence.*

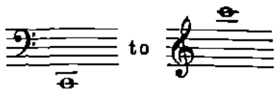
Harpsichord.—A keyboard instrument, the immediate predecessor of the modern grand pianoforte, which it resembles in shape. Pressure on the keys caused plectra to pluck the strings, producing a soft tone with little sustaining power. See *Pianoforte.*



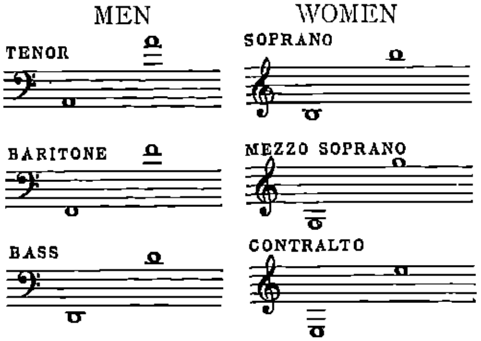
Horn.—A brass instrument of the orchestra usually called the *French horn* to distinguish it from the English horn, or cor anglais which belongs to the wood wind department.



Human Voice.—The compass of the human voice is roughly—



No single person has ever, of course, possessed a voice covering so phenomenal a range, but all voices have a compass somewhere between those two limits. The following table will give the average compass of the different voices, about two octaves in each case. It will be noticed that there is some overlapping. The best tone is never possible on the extreme notes.



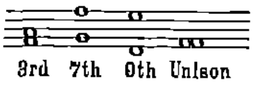
There are certain further classifications, such as *tenore robusto,* and *coloratura soprano,* etc., but discussion of them is beyond the scope of the present work.

Imitation.—The repetition of short phrases in another part or at a different pitch. Every well constructed piece, however simple, contains examples of it. See *canon.*

Imperfect Cadence.—An ending on the dominant chord, preceded by the tonic chord. See *Cadence.*

Impromptu.—A composition written without preparatory work or study. Schubert wrote a number of popular pieces of this type.

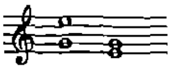
Interval.—The difference in pitch between two notes. It is named from the number of degrees of the stave involved. An interval greater than an octave is said to be compound; thus a tenth is sometimes called a compound third,— See *Concord; Discord.*



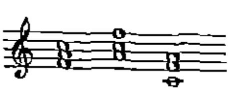
Invention.—A short piece in Binary form. The term was probably used by no other composer but J. S. Bach, who wrote a number of pieces in this form.

Inversion.—

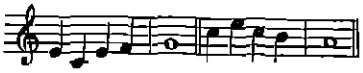
1. Reversing the notes of an interval—



2. Changing the position of the notes of a chord, with a different note in the bass—



3. Reversing a phrase—



Jongleurs.—Itinerant musicians of the Middle Ages.

Just Intonation.—Just temperament. Tuning of instruments according to accurate scientific intervals. String instruments are played in this system of tuning. See *Equal Temperament.*

Kapellmeister.—Conductor or Director of music.

Key.—Scale. A piece is said to be in a certain key or scale, shown by the series of sharps or flats placed at the beginning, called the Key Signature.

Keynote.—The tonic note. The principle note of the scale.

Largamente.—Broadening the time.

Largo.—Broadly. Slowly.

Leader.—The principal violinist of the orchestra. He usually sits immediately on the conductor's left.

Ledger lines.—The short lines placed above or below the stave to accommodate those notes which are too high or too low to be placed upon the stave itself.

Legato.—Smoothly. Opposite of staccato.

Leggiero.—Lightly.

Lento.—Slowly.

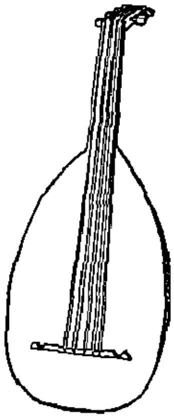
Libretto.—The book of words of an opera or oratorio. It is only rarely that a composer, like Wagner, writes his own libretto.

Lied.—Song.

Lieder.—Songs of the type written by Schubert, Schumann, Brahms and Wolf.

L'istesso.—The same; e.g., *l'istesso tempo*—the same time.

Loco.—In the usual place. A direction used to contradict the instruction to play an octave higher or lower.



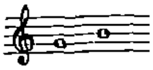
Lute.—A stringed instrument commonly used in the 16th and 17th centuries. The accompaniments of the early examples of song written by Dowland and other Elizabethan composers were written for this instrument. These composers are sometimes referred to collectively as the Lutenist School.

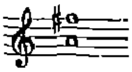
Madrigal.—A secular, vocal composition; polyphonic in character. The best examples are to be found in the works of Palestrina, Morley, Weelkes and Byrd.

Maestoso.—In a majestic manner.

Major.—

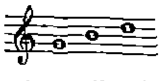
1. Major third has four semitones; e.g.,



Major sixth has nine semitones— 

2. Major scale is a diatonic scale with the semitones between the third and fourth notes, and the seventh and eighth notes. So called because the third note of the scale is a major third above the tonic.

3. Major triad consists of a note and the major third and perfect fifth above—



Marcato.—Marked. Emphasised.

Masque.—A play, very common in Stuart times, in which the players wore masks to suggest the character they represented. The best poets of the time, including Milton, wrote the libretti, and the music was written by Lawes, C. Gibbons and other famous contemporary composers. Henry Purcell considerably expanded this form for his operas, "King Arthur" and "Diocletian."

Mediant.—The third note of the major scale.

Meno.—Less. *Meno mosso*—less movement.

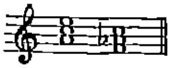
Menuet.— A graceful dance in triple time. Many examples were written by Bach, Handel, Mozart and Haydn.

Metronome.—An instrument for indicating the exact speed of music. The essential feature of it is the pendulum which can be set swinging at a definite number of oscillations per minute. If set at 60, it will beat 60 times per minute, or if at 120, then 120 times per minute. A metronome mark; e.g., ♩=84, is frequently seen at the beginning of a piece of music.

Mezzo Soprano.—The female voice between *Contralto* and *Soprano.* See *Human Voice.*

Middle C.—The C in the centre of the pianoforte. It is also the note which is written on the middle line of the Great Stave. See *Great Stave.*

Minor.—Less. A minor interval has one semitone less than a major. A minor triad is composed of a note, and a minor third and perfect fifth above—



Mode.—Scale. At one time many modes were used, but nowadays music is restricted to two, major and minor.

Modulation.—Change of key.

Molto.—Very much. *Allegro molto*—very quickly.

Motet.—A contrapuntal work, for voices, with sacred words. Parry's "Songs of Farewell" are good modern examples of this form.

Mute.—A small instrument, usually of metal, placed on the bridge of stringed instruments to deaden the tone and incidentally to change the quality. The term is also used for the pad which is placed in the bell of brass instruments for the same purpose.

Natural.—A sign (♮) to contradict a sharp or flat.

Neumes.—An elaborate system of notation in common use during the Middle Ages.

Opera.—A dramatic work in which music forms the essential part. The form dates from the beginning of the 17th century, as does the oratorio, from which, in those early days, it differed very little. Wagner laid greater stress upon the dramatic character of the form than did his predecessors, and called his works "Music Dramas."

Opus.—A work. Composers frequently give their compositions an opus number, which is of great assistance for reference and classification. For example, Beethoven's "Symphony in C Minor" is Opus 67.

Oratorio.—A composition, containing solos and choruses, with accompaniment and based on a sacred subject. Handel wrote many, including "Messiah;" a typical modern example is "The Dream of Gerontius," by Elgar.

Orchestra.—See end of Glossary.

Part.—The music performed by an individual player or singer; e.g., flute part, trombone part. See *Full Score.*

Part Song.—A vocal composition, with several voices to each part. See *Madrigal; Glee.*

Passacaglia.—An old Spanish dance in triple time. Also a series of variations written upon a ground bass. One of the finest examples is Bach's "Passacaglia and Fugue in C Minor," for the organ.

Percussion Instrument.—An instrument whose tone is produced by hitting; e.g., drum, cymbals.

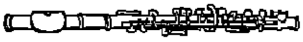
Perfect Cadence.—Full close, dominant chord to tonic chord.

Pesante.—Weightily. Heavily.

Piano.—Softly. Shown—P.

Pianoforte.—A modern keyboard instrument. The first pianoforte were made at the beginning of the 18th century, during the lifetime of Handel and J. S. Bach. Earlier keyboard instruments from which the pianoforte was evolved were the clavichord, cymbals, virginal, spinet and harpsichord. The tone of these earlier instruments was soft, but by the use of hammers instead of plectra the pianoforte can produce both soft and loud tone; hence its name, *pianoforte*, or "soft-loud."

Piccolo.—A small flute. The highest of the wood wind instruments in the orchestra.



Piu.—A little. *Piu allegro*—a little faster.

Pizzicato.—Pinched. Plucking the strings of violins, etc., instead of bowing them.

Plagal Cadence.—An ending consisting of the subdominant chord followed by the tonic chord, as in the "Amen" of most hymns.

Poco.—A little. *Poco lento*—rather slow.

Polyphony.—Music in many parts. Polyphonic music at its best was written in the late 16th century by Byrd, Palestrina, etc.

Presto.—Very quickly.

Programme Music.—Music which describes events. For example, Richard Strauss in his tone poem "Don Quixote," attempts to describe through the medium of music the escapades of Cervantes' hero: Elgar has the same motive in his "Falstaff." Music which is not of this pictorial kind is called *Absolute Music*. Programme music is closely allied with the Romantic Movement of the 19th century, in the works of Schubert, Schumann, Mendelssohn, Liszt, Wagner, and Strauss.

Recitative.—Music that is declaimed. Words are recited upon notes, accompanied by a few simple chords. Copious examples are to be found in "Messiah" (Handel), "Creation" (Haydn) and in "St. Matthew Passion" and "St. John Passion" (Bach).

Resonance.—The resounding quality of tone.

Ritardando.—Becoming slower. Shown—*rit*; or *ritard*.

Rondo.—A form of music in which a passage recurs several times, each presentation of it being followed by a contrasted passage or episode. The last movement of Haydn's "Pianoforte Sonata No. 22, in D," is an example.

Round.—A vocal composition in which the several voices sing the same tune, starting at stated distances, the whole producing correct and musical harmony. One of the best known is "Come, follow."

Rubato.—Literally, "robbed." To prevent music becoming rigid in performance there is frequently a slight deviation from the regular beat, a "give and take" as it were. This is *rubato*.

Sarabande.—A Spanish dance in $\frac{3}{4}$ time. The form was often used in the suites of Couperin, Scarlatti and other keyboard composers of the 17th and 18th centuries.

Scale.—A series of notes in alphabetical order. The chief scales in use to-day are the major, minor and chromatic, and sometimes the whole tone. These have been evolved from the Greek modes, and the old ecclesiastical modes in which music was commonly written until the end of the 16th century.

Scherzo.—Literally "a joke." A quick movement often found in symphonies in place of the menuet. Good examples are to be found in Beethoven's 5th and 7th symphonies.

Score.—A book containing a copy of all the component parts of music to be performed. A vocal score contains a copy of all the voice parts. An orchestral score contains a copy of all the instrumental parts. A full score contains a copy of all the parts, vocal and instrumental.

Segue.—Follow straight on, without pause.

Sempre.—Always. *Sempre cresc*:—continuing to get louder.

Senza.—Without. *Senza ped*:—without the pedal.

Sequence.—The repetition of a phrase at a higher or lower pitch.

Sharp.— Sign (♯) used to raise a note by one semitone.

Simple Time.—Time in which the beats are divisible into halves and quarters. In simple time the numerator of the time signature is 2, 3 or 4. See *Compound Time*.

Solemnisation.—Singing to tonic sol fa.

Sonata.—Literally, "a sounding piece." A composition of several movements for one or two solo instruments. The first movement is generally in the particular form called "sonata or first movement form." See *Concerto; Symphony*.

Soprano.—The highest type of female voice. See *Human Voice.*

Sordine.—A mute.

Sostenuto.—In a sustained manner.

Spinet.—An old keyboard instrument, a precursor of the pianoforte.

Staccato.—Short and detached. Opposite of legato.

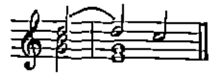
Strepitoso.—Noisily and boisterously.

Stretto.—Drawing closer. The entries of the subject in a fugue are frequently in stretto; e.g., one voice enters before the previous voice has completed the subject, thus causing overlapping.

Subdominant.—The fourth degree of the scale.

Supertonic.—The second degree of the scale.

Suspension.—The holding of a note of a chord over another chord, of which it forms no part—



Symphony.—Literally, "agreeing in sound." A work similar in form to a sonata, consisting of several movements, usually on a large scale, for orchestra. Among the greatest composers in this form are Beethoven, Brahms, Elgar. See *Sonata*; *Concerto.*

Syncopation.—Displacement of the accent in the bar, or placing the accent on a usually weak part of the bar.

Tacet.—Silent.

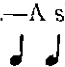
Temperament.—A system of tuning instruments. At one time, all instruments were tuned according to *Just Temperament,* in which system all the notes of the scale were exactly and scientifically in tune. When music, in the 17th century, began to make frequent modulations during the course of a piece, it was found necessary to effect a compromise in tuning. The system of *Equal Temperament* was adopted, whereby the octave was divided into 12 equal semitones making modulation from key to key an easy matter. Modern keyboard instruments are still tuned in Equal Temperament. In the 17th and 18th centuries, during the lifetime of J. S. Bach, there was considerable controversy on the subject. Bach's adherence to the new Equal Temperament system was confirmed by his 48 *Preludes and Fugues for the Well Tempered Clavier*; in this work there are two preludes and fugues in each major and minor key.

Tempo.—Time. *A tempo,* in time.

Tenor.—The highest type of male voice. See *Human Voice.*

Ternary Form.—Three part form, consisting of statement, contrast and re-statement. A simple example is *My love's an arbutus.* See *Binary Form.*

Thorough Bass.—Figured Bass.

Tie.—A slur joining two notes of the same pitch.  The second note in this case is not played, but merely sustained.

Toccata.—Literally a "touching" piece. A rapid, brilliant type of piece, calling for dexterity of fingers.

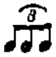
Tonic.—The principal note of the scale or key. Key note. Doh.

Transpose.—To write or play music in a different key.

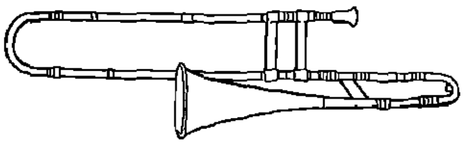
Transposing instrument. — Instruments which, owing to a peculiarity in construction, do not play the exact notes written for them; e.g., clarinet; horn.

Triad.—A chord of three notes, i.e. note 3rd and 5th above.

Trio.—A composition for three voices. The middle section of a menuet.

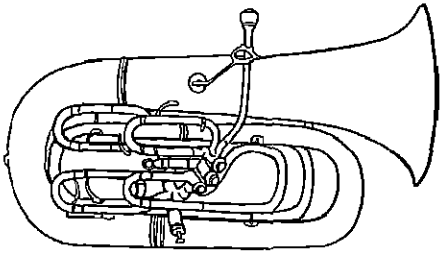
Triplet.—A group of three notes played in the time of two. 

Trombone.—A large brass instrument. See *Orchestra.*



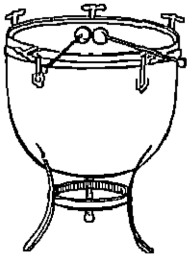
Trumpet.—A wind instrument consisting of a long metallic tube, once or twice curved, with cup-shaped mouthpiece and ending in a bell. The tone is given by the vibration of the player's lips against the mouthpiece of the tube.

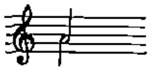
Tuba.—The largest brass instrument in the orchestra. See *Orchestra.*



Tutti.—Chorus. A direction to show that all the performers are to sing or play.

Tympani.—Kettle drums. See *Orchestra.*



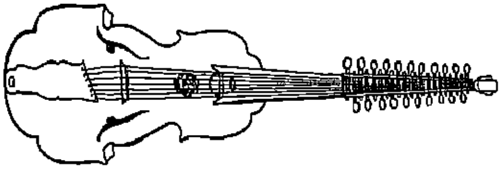
Unison.—The perfect interval— 

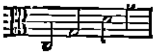
Unison singing is that in which all the singers, male and female, sing the music in octaves.

Vamp.—To improvise an accompaniment which is usually based on the primary chords, tonic, dominant, and subdominant.

Vibrato.—A trembling quality of tone. Players of stringed instruments obtain it by a free movement of the wrist as the finger "stops" the note on the string: the quality of tone is greatly enhanced by the judicious use of this effect. Most voices have a natural vibrato; some singers cultivate it to such an extent that the intonation becomes untrue and the voice develops an unpleasant wobble.

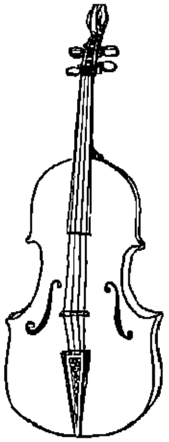
Viol.—A stringed instrument in common use in Elizabethan times. It was the precursor of the modern string instruments. It was made in various sizes, in much the same way as string instruments are to-day. Many of the Elizabethan madrigals were written as being "apt for voices or viols."

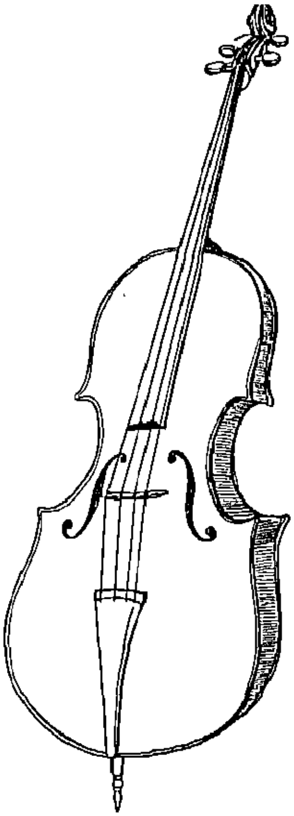


Viola.—The tenor violin: the strings are tuned to the following notes— 

Music for the viola is usually written in the alto clef.

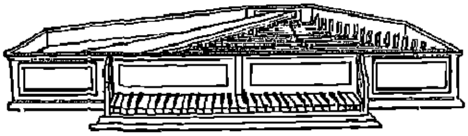
Violoncello.—Literally "little violin." It is nowadays usually called the 'cello.



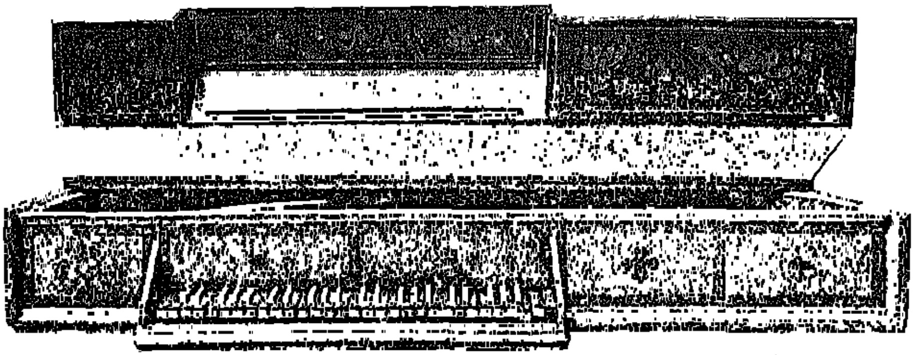


Violone.—The old name for double bass.

Virginal.—An old keyboard instrument. Much of the instrumental music by Byrd,



Gibbons and other contemporary composers was written for it. Queen Elizabeth is supposed to have been an accomplished exponent upon the virginal.



[*Photo : Euophot.*

QUEEN ELIZABETH'S VIRGINAL

Vivace.—Very quickly and lively.

Wood wind.—Flutes, oboes, clarinets, cor anglais, bassoons and other similar instruments.

THE ORCHESTRA

The word "orchestra" means literally, "a dancing place." Originally it meant that part of the Greek theatre where the dancers performed their evolutions; its position was so arranged that the view of the stage from the auditorium was not obstructed. Now it means the place in a theatre set apart for the musicians, or indeed, the body of musicians themselves.

Instruments may be arranged in three classes *according to the method by which* their tone is produced.

There are:

1, those whose tone is produced by the bowing of strings, called string instruments.

2, those whose tone is produced by blowing into a pipe, called wind instruments.

3, those whose tone is produced by hitting, called percussion instruments.

In the modern orchestra all these three classes of instruments are employed. Orchestras vary considerably in size and constitution, but the following table shows the complete list of instruments to be found in a large modern orchestra such as the B.B.C. Symphony Orchestra, or the London Symphony Orchestra. The wind instruments are subdivided into two classes, wood wind and brass, according to the material of which the instruments are constructed.

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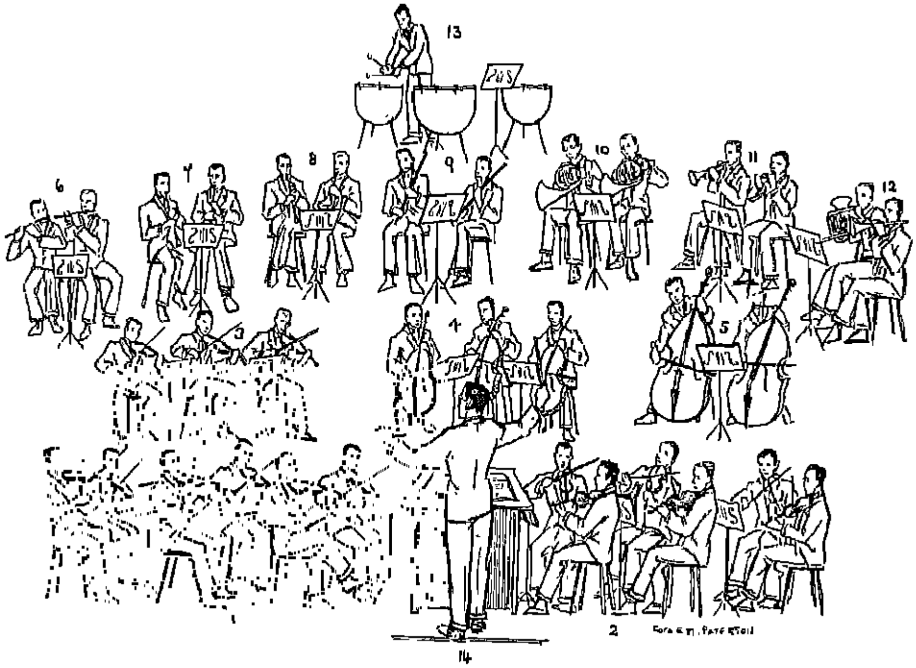


DISPOSITION OF THE PLAYERS IN THE ORCHESTRA

1. First Violins
2. Second Violins
3. Double Basses
4. Violoncellos
5. Violas
6. Flutes
7. Oboes
8. Clarinets
9. Bassoons
10. French Horns
11. Trumpets
12. Trombone and Tuba
13. Tympani
14. Conductor

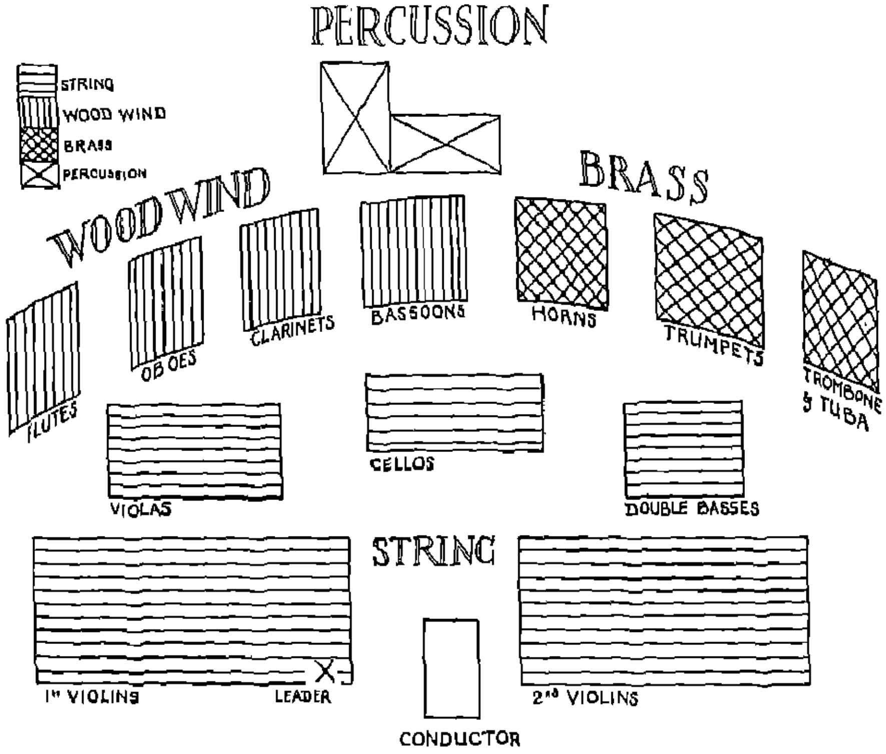
STRING	WOOD WIND	BRASS	PERCUSSION
Violin . . 36	Piccolo Flute } . 5	Horn . . 8	Tympani . 2
Viola . . 14	Oboe . . 5	Trumpet . 5	Bass Drum 1
Violoncello ('cello) 12	Cor Anglais (one of the oboe players would play this when needed)	Trombone . 6	Cymbals .
Double Bass . 10	Clarinet . 5	Tuba . . 1	Triangle . 1
	Bassoon . 5		Glockenspiel 1

The numbers indicate the number of that particular instrument in the B.B.C. Symphony Orchestra. Smaller orchestras usually contain 2 of each wood wind instrument, 4 horns, 2 trumpets, 3 trombones and probably about half the number of strings.

The complete copy of the music which the orchestra is playing is called the Full Score. In this book the parts for the various instruments are arranged in groups in the following conventional manner.

- WOOD WIND
  - Piccolo
  - Flute
  - Oboe
  - Cor Anglais
  - Clarinet
  - Bassoon
- BRASS
  - Horns
  - Trumpet
  - Trombone
  - Tuba
- PERCUSSION
- STRINGS
  - Violin 1st
  - Violin 2nd
  - Viola
  - 'Cello
  - Double Bass

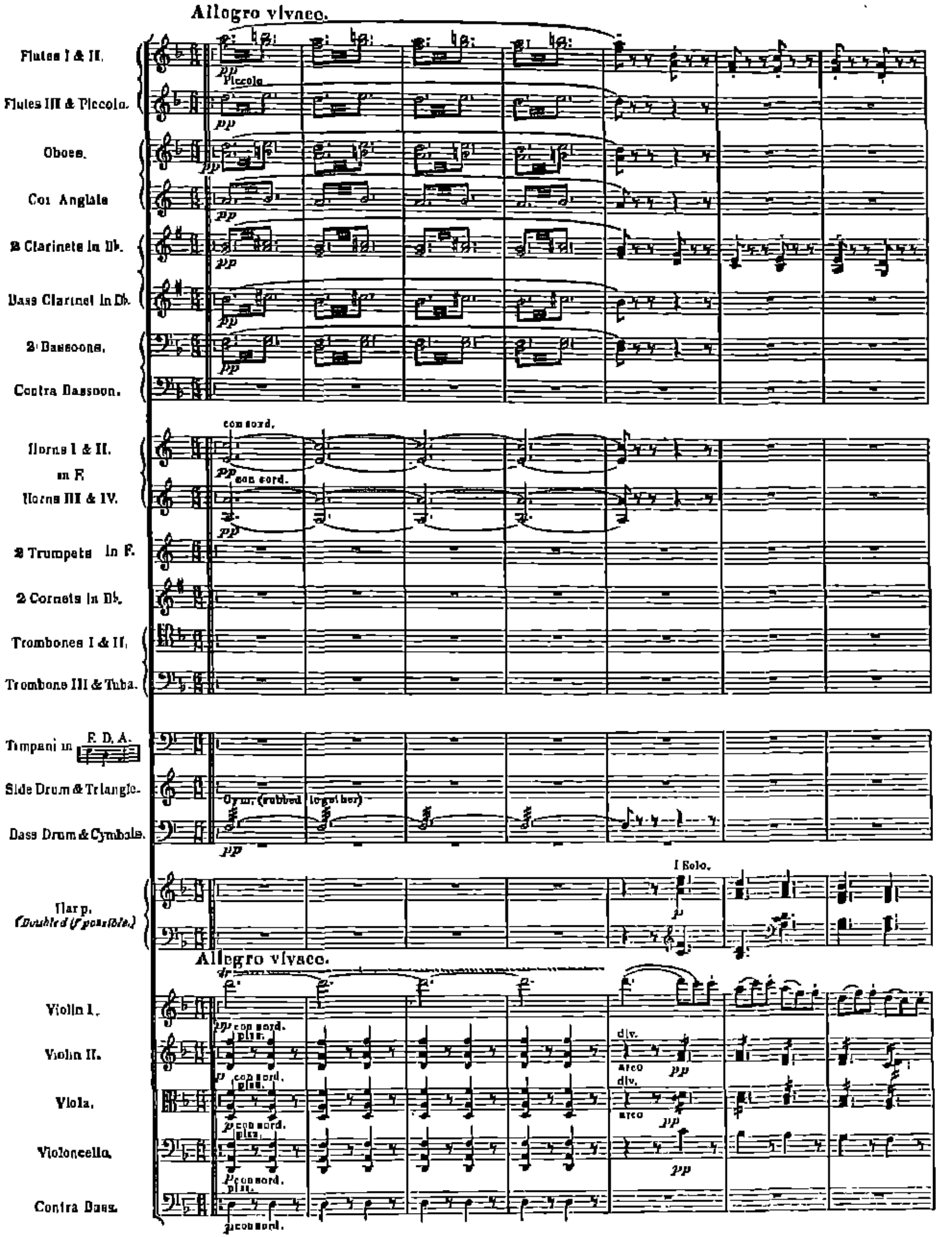
When the orchestra is playing at a concert, it is essential that the players be arranged according to some well conceived plan, so that they can see the conductor and he in his turn knows exactly where each one of them is situated. The arrangement is dictated by the special conditions of the hall in which the orchestra is playing, or by the particular wishes of the individual conductor. Here is a plan which is very widely favoured.



A LONDON SYMPHONY.

R. VAUGHAN WILLIAMS.

III. SCHERZO (Nocturne.)



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A Page of Full Score

From the picture by Lord Leighton, P.R.A.] *[By permission of the Fine Art Society, Ltd.*

THE MUSIC LESSON

THE STORY OF MUSIC

TO define the term "music" would be a difficult undertaking. Although in these modern days there is the opportunity of hearing music as never before in the history of the art, to endeavour to describe it adequately in a short sentence is to attempt the impossible. It is not sufficient to say that it is a series of sounds; for the singing of a few isolated notes or the playing of a series of chords upon the pianoforte would not of necessity produce what is generally recognised as music.

Music is an art. This latter term may mean "skill" or "ability;" but used in the sense that "music is an art," or "sculpture is an art," it means "the expression of beauty." A sculptor conceives in his mind a thing of beauty, and through the medium of marble or bronze tries to give expression to what is in his mind; a painter sees a beautiful landscape or a lovely figure, and through the mediums of colour and perspective tries to give expression to the beauty he has experienced. In the same way a composer of music endeavours, through the medium of organised sounds, to express thoughts and ideas of beauty.

Music, too, is a language—an international language. Many people may be isolated from their French or German neighbours as a result of language difficulty; yet it is possible for them to enjoy, appreciate and understand the music written by foreign composers. Foreign artists and orchestras frequently visit this country to perform the music of their own countries, and, what has not happened for centuries, British musicians are performing British music in all countries of the world; in this way the universal art and language of music is playing its part in the unification and pacification of mankind.

It is impossible to give a date for the beginning of the art of music. Primitive man gave expression to his thoughts and desires through simple sounds cries of fear, love or hate. In those cries there is the beginning of both speech and music. As man became more civilised he found it desirable to express himself more fully, and so several sounds were combined to form words; later words were arranged in phrases and sentences, and, gradually, as the years have passed, speech has been developed and expanded into the complex language we use to-day. This is true not only of English, but of all the other languages of the world.

Imagine a primitive savage uttering a single vowel sound, possibly the sound "ah." One day he found that it was a pleasant effect to utter that same sound first at a high pitch and then at a lower one: the result would be a tune, certainly a very elementary one, but nevertheless, a tune. Then he discovered that it was very pleasant to sing those two notes in varying rhythms to accompany his dancing; gradually more notes would be added to his tunes, new rhythms invented, and his music would become more complex and more expressive of what was in his mind. Through many centuries development and expansion have been going on, each period contributing something, until music has become what we know it to-day.

If music is to be understood and appreciated it must be studied. An Englishman has to make a special study of a foreign language before he can use it. A foreign language contains sounds that are unknown to him; there are combinations of sounds, called words, that are strange to him; laws of grammar and idiomatic expressions which demand his attention; and only after prolonged, intelligent study can he attain the fluency and ease which are necessary if he is to use the language to express himself adequately. The case of music is identical. It is surprising to find people enjoying music without knowing very much about its construction or its real nature. There is, of course, a certain pleasure to be derived from the hearing of beautiful sounds, without knowing what they are intended to mean; but in real music the composer is expressing himself, and the listener can fully understand what is being expressed only if he first of all understands the language. J. S. Bach and Beethoven, like Shakespeare and Goethe, had deep insight into truth and beauty; they expressed themselves through the medium of organised sounds called music, and he who would really understand, must **study** music. This aspect of music needs stressing in these days when the art is being exploited so incessantly to its detriment by the crooner, the jazz band player, and the writers and publishers of much so-called "popular" music.

It is interesting to compare modern English, with the English of Coverdale and Tyndall; the language of those days was relatively pure and free from foreign words and expressions, but now, as a result of close contact with other nations and the discoveries of science and the universal interest in sport, it has been found necessary to introduce hundreds of new words that were unknown a few centuries ago. In the same way it is interesting to compare contemporary music with that written at some earlier period. An Elizabethan would not understand a great deal of our language: a Tudor musician would not understand, and indeed could not tolerate, most of the music written to-day. The art has developed and expanded beyond recognition. The story of music, as outlined in the following pages, is a brief description of how such a transformation has been wrought.

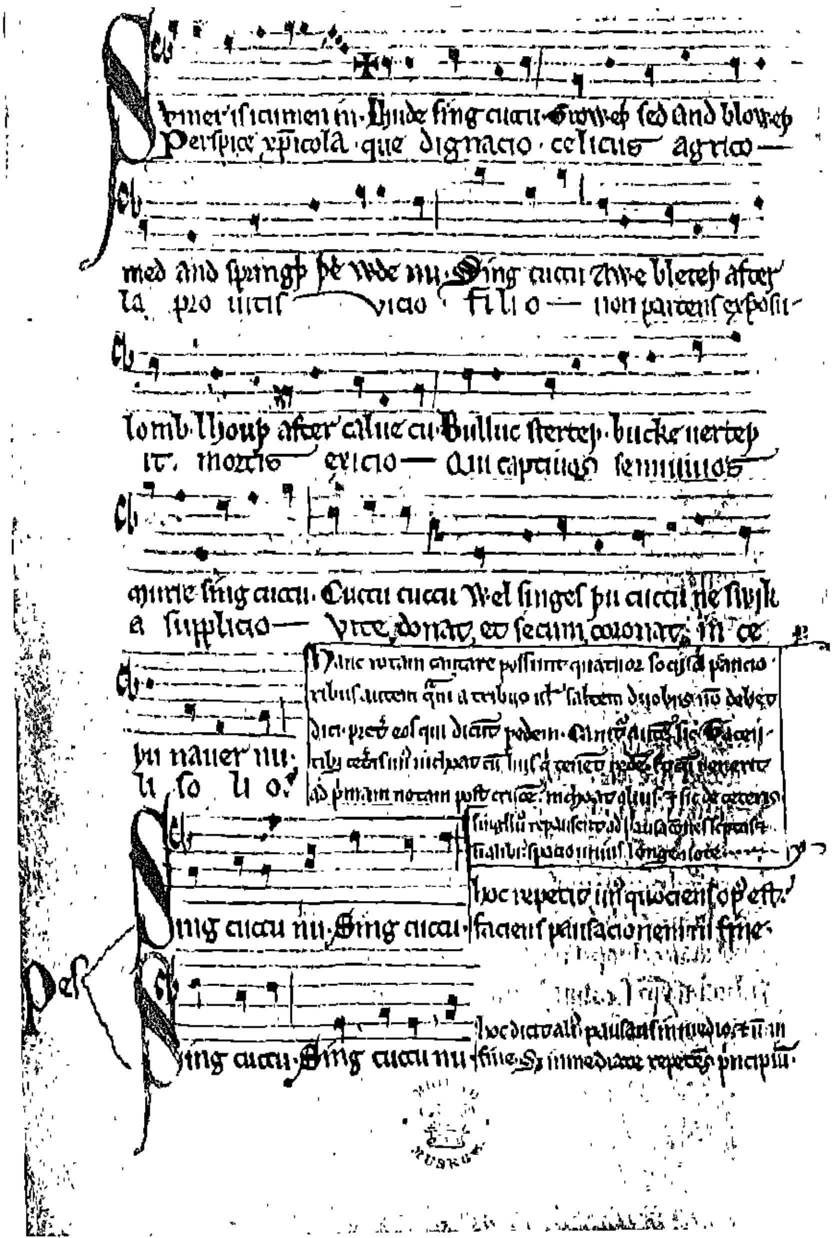
EARLY TIMES

The details of the development of music in very early times are obscure, though it is known that the art was practised in the days of the Egyptian, Greek and Roman Empires. It is generally supposed that the Greeks learnt the rudiments of music from the Egyptians. On many of the remains of Ancient Egypt, there are representations of musical instruments and their players, from which fact it may be deduced that the people of the time were greatly interested in the art.

Much of the pioneer work in the organisation of the sounds used in music was done by the Greek theorists, amongst the greatest of whom was Pythagoras. They developed at first a series of four notes, called a tetrachord; later, two tetrachords were joined, making an eight note scale, called a mode, from which our modern scales have been evolved.

In the year 330 A.D., Pope Sylvester established a singing school in Rome. It is supposed that even at that date the music practised was based upon the modes used by the ancient Greeks. St. Ambrose, Archbishop of Milan, took a great interest in the Music of the Church, and Pope Gregory the Great made a considerable revision of the Greek modes. Music was written in these Gregorian modes for many centuries, indeed, until the end of the sixteenth century when the contrapuntal style reached its perfection in the works of Palestrina, Byrd and Gibbons. After their time, music was restricted almost entirely to only two of these modes, the major and the minor, but the modern revival of interest in the music of the sixteenth century of the old church plainsong has revealed the beauty of the old modal system and encouraged composers such as Vaughan Williams, Charles Wood and Gustav Holst to make use of them for some of their music.

The rise and development of vocal music until it reached perfection in the sixteenth century provides an interesting study. In the earliest times, composers wrote only tunes to be sung in unison. Such tunes sound crude and elementary to modern


Sumer is icumen in · Lhude sing cuccu · Groweþ sed and bloweþ
Perspice xpicola · que dignacio · celicus agricola
med and springþ þe wde nu · Sing cuccu · Awe bleteþ after
la pro vitis vicio · filio · non parcens exposu-
lomb · lhouþ after calue cu · Bulluc sterteþ · bucke uerteþ
it · mortis exicio · Qui captivos semivivos
murie sing cuccu · Cuccu cuccu · Wel singes þu cuccu ne swik
a supplicio · vite donat et secum coronat in ce-
þu nauer nu
li solio
Sing cuccu nu · Sing cuccu
Sing cuccu · Sing cuccu nu
Pes

[By courtesy of The British Museum (Harley 978).

ENGLISH ROUND "SUMER IS I-CUMEN IN" (c. 1225)

ears; they were restricted to a very limited compass, contained many repeated notes, and their rhythm showed little variety. After a time composers endeavoured to combine two tunes to be sung simultaneously, and set themselves to solve the elementary problems presented by two-part writing. For a long time all they did was to write a tune and add another, which was the same tune a fourth above, rather like a descant. This kind of writing, which sounds intolerable to us, was called diaphony. Later, composers discovered that a far greater variety of effect could be obtained by combining tunes which did not always move in the same direction, and that intervals of thirds and sixths were much more pleasing than fourths. This use of various intervals and the employment of contrary as well as similar movement shows a big advance in composition. It was not long before composers learnt how to write in three, four and more parts, so that even by the twelfth and thirteenth centuries quite elaborate music was being written.

Very little of this ancient music has been preserved, but one striking composition, *Sumer is i-cumen in*, gives a very good idea of the standard of writing in the thirteenth century. It is a unique work in many ways, composer unknown, and is supposed to have been written about the year 1225.

As was the case with all learning during the Middle Ages, music was fostered in the monasteries. It is not surprising to find, therefore, that the vast bulk of the music of this period was of a sacred nature: the monks were quite naturally interested in the liturgies of the church, and directed their energies and studies to the composition of suitable music for the services. A typical church musician of the Middle Ages was John Dunstable (died 1453), who was not only a composer but the author of a number of important treatises on the theory of music.

Some of the reigning monarchs of England of this period not only enjoyed music and encouraged its composition and performance, but themselves took an active part in its development. Thus Henry V (reigned 1413–1422) maintained a full musical establishment as part of his Chapel Royal; Henry VI (reigned 1422–1453) was a composer of some merit; Henry VIII (reigned 1509–1547) was properly trained in the art of music and wrote a number of compositions, some of which are still performed to this day. Other representative composers of this period whose music is frequently sung in our Cathedrals and large parish churches were Christopher Tye (c. 1500–1572/3), Richard Farrant (died 1580), John Merbecke (died c. 1585) who supplied the music for the new Prayer Book issued under Henry VIII, and Thomas Tallis (c. 1505–1585), who, with Merbecke, was among the chief church musicians of the Reformation period.

In addition to these so-called recognised composers, there were, in the early Middle Ages, itinerant musicians called troubadours, trouvères or minnesingers, according to certain distinctive characteristics. They all had this in common, that they wandered from place to place, composing, singing and playing music. These wandering minstrels were welcome guests at the castles of the great nobles or among the peasants of the villages in those times when life was hard and dull, and when there was little to be had in the way of entertainment and amusement. They would compose ballads, frequently based on events of national, or local importance, or songs about love or things of domestic interest, set them to simple music, and sing them during their journeys. These men were poets, musicians and distributors of news. Among the troubadours who were aristocrats may be named the English King, Richard Coeur de Lion.

Then, too, there is that vast collection of music called folk music. All countries of the world have their own folk music, and indeed different districts in a country have their own local products. Such music was composed by unknown authors, probably by several collaborators. The words frequently describe legends, local events or quite often are almost without sense or meaning; they have been set to tunes, usually quite short, with simple melodies and fascinating rhythms, many of which are artistically perfect. For many generations they were passed on from mouth to mouth; undoubtedly during the process many changes were made, and in this way the tunes were gradually improved until they assumed the form in which we know them to-day. It is only in comparatively recent years that these songs have been written down. Enthusiasts like Cecil Sharp, have devoted enormous time and patience in seeking out these tunes and persuading shy, suspicious and unwilling peasants to sing them in order that they may be written down. Such songs are most enlightening in their display of the character of the people of different parts of the world, or of a district of a particular country, and in the last hundred years or so, have also had a distinct influence on musical composition. More will be said about this in the discussion of Romantic Music.

The Tudor Period marks a great increase in the secularization of music. Before that time, the official composers were concerned almost entirely with church music, and refused to countenance such a thing as music of a secular nature. Upon the breakdown of the monastic system and the revival of learning which took place in the fifteenth and sixteenth centuries, they modified and expanded their views, and soon were composing music for secular purposes with great zest. Music during the Tudor Period was considered to be of great importance and no person could be accepted as being fully educated unless he could read music at sight, and take his part in the singing of madrigals. It was a common practice for friends to meet at each other's houses in the evening, the parts to be distributed, and the time spent in the singing of madrigals which were being composed in such profusion at the time. The Elizabethan Period is one of the greatest in the history of music in this country; it is often called The Golden Period. There were many composers of outstanding merit—Byrd, Dowland, Weelkes, Morley. The country had been delivered from the menace of Spanish invasion by the defeat of The Armada; English seamen were making their great voyages of discovery, and the country was becoming more and more prosperous; all this seems to have been reflected in the contemporary music. Composers were encouraged by the Queen, to whom, as a mark of respect and homage, they dedicated a collection of madrigals called *The Triumphs of Oriana.* English music at this time was second to none in the world.

The greatest composer on the continent was the Italian, Palestrina (1525/6–1594). He was a composer of both sacred and secular music, and his work marks the culmination of the contrapuntal style as shown in the madrigals and sacred music of his time. One interesting fact about his music for the church may be noted. It was thought by the church authorities that the music for use in the church service had become too elaborate and ornate, and very often proved distracting instead of being an aid to worship, with the result that there was a danger of music being banned entirely. The story goes that Palestrina set about writing masses in which he very carefully preserved the devotional sense of the words, with the result that the Council of Trent (1562) did not enforce its ban. The story may not be true in every detail, but certainly Palestrina brought about a great reform in the writing of music for the church service. The work which this reform is generally associated is *Missa Papae Marcelli.* Instead of long florid passages on syllables or unimportant words, the style became much more simple through the adoption of the principle of one note for each word or syllable.

This rapid survey gives a brief description of the history of vocal music down to the year 1600. After that date there was a revolutionary change in the idea about the functions of music and the technique of composition; so that in the next period, music branches out into some entirely new directions.

GRAMOPHONE RECORDS

TITLE	COMPOSER	RECORD NUMBER
VENI SANCTE SPIRITUS (10th century)		Columbia (History of Music) 5710
MIRA LEGE (12th century)		Columbia (History of Music) 5710
SUMER IS I-CUMEN IN		Columbia (History of Music) 5715
LORD, FOR THY TENDER MERCIES' SAKE	*Farrant*	Columbia DB216

OTHER MUSIC

CALL TO REMEMBRANCE	*Farrant*	
O GOD OF BETHEL	*Tye*	
O LORD, THE MAKER OF ALL THINGS	*Mundy* (sometimes attributed to *Henry VIII*)	Novello
O LORD MY GOD, TO THEE	*Arcadelt*	

OPERA

FROM the point of view of learning and culture, the Middle Ages must be considered a dull and arid period during which little progress was made. The majority of people were ignorant, superstitious, and too oppressed by the rigours of constant warfare and strife to be able to devote much attention to the cultivation of the arts. In the fifteenth and sixteenth centuries, a great revival of interest in learning swept across Europe; men studied the writings of Ancient Greece and Rome; new views on religion and many other subjects were expressed, and a wider interest of things of the mind was showing itself everywhere. This Renaissance wrought a great change in music.

The change began in Italy. Some noblemen met together with the object of reviving the arts of music and drama as they had been practised in Ancient Greece. They had as their models in addition to the plays of the Greeks, the mystery and miracle plays of the church of the Middle Ages, as well as secular plays that had been produced by French writers. For some time music and the drama had been associated, but in the operas of these sixteenth century Italian composers, music was made to serve a much more important purpose; it was used as the direct expression of emotion, to accompany dancing, and to provide a background for the action by suggesting a storm, a battle or any other occurrence or event that was being portrayed on the stage.

Most of the words were now sung by the characters in the play instead of being spoken by them. Sometimes they were set to melodies, or if they were of a declamatory nature they were recited on notes and accompanied by a few simple chords. This was the beginning of recitative.

One of the earliest operas was *Euridice* by Peri, which appeared in 1600. It would not interest a modern audience, but its importance lies in the fact that it marks the initiation of a new style of music which reached its culmination in the works of Wagner, Puccini and Richard Strauss. Although not a member of the band of friends who first wrote operas, one of the most important composers of the time was the Italian, Claudio Monteverdi (1567–1643). During the early part of his career he wrote madrigals in the old contrapuntal style; the "New Music," as it was called, attracted him, and he forsook the old style in which he did not excel to any marked degree, and began to write operas. His first opera, *Orfeo*, appeared in 1607. It was far in advance of anything of the kind that had been written before it, and served as a model for other works not only by himself but by other composers as well. Even to-day it is still occasionally performed. One or two of its important features must be noted, because the history of opera is really an account of the building of a superstructure upon the foundations so ably laid by Monteverdi. There is a great affinity between the mood of the words and that of the music; he felt that if music was to be a suitable vehicle for the expression of words, it must follow the changes of mood and sentiments in every phase. Madrigals were written in parts for three, four or more voices, and sung unaccompanied: such music sounded full and complete. In the operas it became customary to write for solo voices, to which it was necessary to add an instrumental accompaniment. Consequently Monteverdi evolved an orchestra consisting of harpsichord, lutes, viols, flutes and trumpets, a combination which he used with great skill. He obtained variety by his use of the various classes of instruments, and so in a very elementary way solved some of the problems of orchestration. He had a keen sense of the dramatic, and on the technical side of music did much to cultivate the sense of key and modulation from one key to another. By scholars, Monteverdi is considered to occupy a place mid-way between Palestrina and Handel (1685–1759).

[*Photo : Attilio Badodi, Milan.*

PUCCINI

The next great composer of operas was Alessandro Scarlatti (1659–1725). During his lifetime opera houses were built in many Italian cities and towns, though in some places there was considerable opposition from the church authorities who objected to the way in which these establishments were conducted. The continuance of the opera houses was dependent to a very large extent upon public support; the composers had to learn the kind of music which most appealed to those people who were willing to pay for seats in the theatre, with the result that public opinion had a considerable effect upon the style in which operas were written. Most patrons enjoyed a spectacle, and music that was tuneful, sung by artists with first rate voices which they used with consummate skill. In Scarlatti's operas, therefore, there is much less of the dramatic than in Monteverdi's; instead there are arias, as they are called, calculated to exhibit the vocal powers of some great singer, in place of the less spectacular type of music in which the composer was at great pains to follow faithfully all the subtle changes of mood contained in the words. Scarlatti seems to have judged exactly what would appeal to the audiences: he set the style for a long succession of Italian opera composers, generally known as the Neapolitan school, who were famed for the excellence of their writing for the voice. He exerted considerable influence upon Handel.

From a painting ascribed to Francesco Solimena.]

ALESSANDRO SCARLATTI

The "New Music" had spread to France. Here, Jean Baptiste Lully (1633–1687) was the first composer of legitimate French opera. In early days he became associated with Molière, for some of whose plays he wrote incidental music. Though an Italian by birth, he spent nearly the whole of his life at the French Court, and ultimately after a long period of scheming and intrigue was naturalised and appointed Court Musician. He wrote many ballets, and frequently introduced them into his operas where they proved a great attraction to French audiences. Also, he has a claim to be the first composer to write overtures to his operas. These overtures are written in a particular form, now known as the French Overture Form: they consist of a slow movement, then a lively movement (frequently a fugue) and usually a slow concluding movement. A good example of this form is the overture to *Messiah* by Handel.

In England, too, operas were becoming popular. After the Restoration of the monarchy, Charles II, who had become thoroughly familiar with French music during his exile, was anxious to introduce music of similar type in this country. He sent a promising English musician, Pelham Humphrey, to France for the purpose of study; he, on his return, exerted considerable influence upon other English composers, including Purcell.

Henry Purcell (1658–1695), one of the greatest of English musical geniuses, wrote incidental music for many plays, and produced complete operas such as *Dido and Aeneas*, *Diocletian*, and *King Arthur*. His greatness is not fully realised partly because of his relatively short life, and partly because he was overshadowed by Handel who came to England shortly after Purcell's death.

George Frederick Handel (1685–1759), who early showed a gift for music, went to Italy to complete his training, and there came under the influence of the Neapolitan school. He produced several operas there which met with success, and then returned to his native Germany. In 1710 he came to England to produce his opera *Rinaldo;* this venture was so successful that although he was under contract to return to Germany, he was determined to come to London again as soon as possible, where he felt there was a unique opportunity for developing the Italian style of opera in which he so firmly believed.

From a painting by P. Mignard in the Musée Condé, Chantilly]

LULLY

On his return, the Royal Academy of Music (not the present institution) was established for the promotion of Italian opera, with Handel as musical director and composer. For some years the undertaking was successful. Handel composed many operas which received their first performance there; but gradually he lost public support, and that, combined with troubles among his singers, machinations of a rival, the production at another theatre of *The Beggar's Opera* which attracted great crowds of people, caused Handel to close his opera house in 1728, a ruined man. It was only after this catastrophe that he wrote that long series of oratorios culminating in *Messiah,* by which he is chiefly remembered. His operas are now never performed upon the stage. So often the libretto is insignificant or even silly; there are long periods during which there is little or no action, and the main interest centres round the arias which were sung by singers with prodigious voices whose chief concern was the display of their own ability, rather than any genuine interest in the music itself. Some of the songs such as *Lascia ch'io pianga* and *Ombra mai fu* (Largo) are still sung in the concert room, but much of the fine music in the operas has sunk into oblivion.

The champion of operatic reforms which were made during the eighteenth century was Christopher Willibald Gluck (1714–1787). At first he wrote opera in the prevailing Italian style, but became more and more convinced that the style was unsatisfactory. Opera was spoilt by the many conventions and restrictions which had to be observed by composers who were dependent upon satisfying their wealthy patrons and the general public. The aims of Monteverdi had long been forgotten, and Gluck devoted himself to reaffirming them and expanding them. His view was that the music should be in complete accord with the sentiments expressed in the words, and that the drama should be allowed to unfold itself without being hampered by the prevailing conventions of the day. He objected to the wearisome sequence of recitative and aria which held up the action, and considered that the music should have more continuity, one section moving on quite naturally into the following without long pauses for applause and acclamation by the audience. The first opera in which Gluck gave practical expression to his principals was *Orpheus,* produced in 1762, which so puzzled the audience, and incidentally, shook his own faith, that he did not repeat the experiment for some time. It is interesting to note, in passing, that of all the early writers of opera, Gluck's works are the earliest which genuinely interest a modern audience. His second opera in the reformed style was *Alceste,* produced in 1767; this met with a more immediate success than its predecessor.

Then Gluck visited Paris, which was a stronghold of Italian opera. He secured the support and patronage of Marie Antoinette, who, being an Austrian, was interested in his recent successes in Vienna, and gradually, a large following from the general public. The city was divided into two camps: those who supported Gluck, and those who followed Piccinni, a composer of Italian opera who had been encouraged to come to Paris to oppose Gluck. Both the composers produced operas according to their own particular theories. The struggle was long and bitter, and only terminated in Gluck's success at the time of his death. Florid coloratura passages find no place in Gluck's operas; the music is more simple in style though more sincere; there is a more skilful use of the instruments of the orchestra, and the overtures serve to prepare the audience for the mood of the subsequent action. He endeavoured, too, to write music of a distinctive nature for the various characters in the play, a practice which was brought to perfection in the next century by Richard Wagner (1813–1883).

From a bust by Houdon in the Donaldson Museum (R.C.M.)]

Gluck

Opera was considerably enhanced by the work of Wolfgang Amadeus Mozart (1756–1791). He was born at Salzburg, and was the son of a violinist. When still very young he and his sister were taken on a tour of many of the great cities of Europe as child prodigies. His first really important opera was *Idomeneo,* produced at Munich in 1781 on the occasion of a great carnival. Others followed in quick succession—*The Marriage of Figaro,* 1786; *Don Giovanni,* 1787; *Così fan tutte,* 1790; and his last, *The Magic Flute,* 1791. These works are important contributions to the repertoire of operas, and their popularity may be assessed from the frequent performances of the overtures and arias in the concert room, and the annual stage productions in Mozart's native Salzburg, and at Glyndebourne, near Lewes, Sussex.

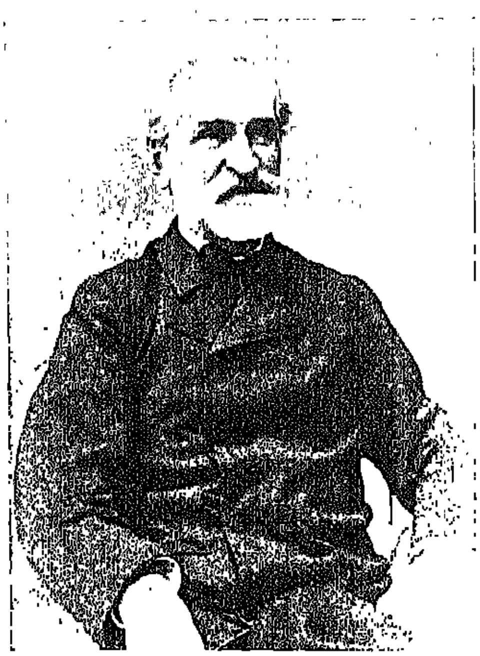
Beethoven (1770–1827) was not greatly attracted to opera. He wrote one work in this form, *Fidelio,* which, though not a success at its first performance in 1805, is still performed to-day. The overture is frequently played in the concert room under the title *Leonora,* from the name of the heroine of the opera. In fact, there are three versions of this overture; but the greatest is *Leonora No.* 3, which gives an epitome of the story of the opera in music form; this overture is never played as the introduction to the opera.

The founder of the German Romantic Opera style was Carl Maria von Weber (1786–1826). He was the son of an actor, from whom he acquired the technique of theatrical performance. Further opportunities for the study of the problems of opera writing came during the periods when he was conducting at the opera houses of Prague and Dresden, at which latter place Wagner gained so many triumphs. His first opera of importance was *Der Freischutz* (The Marksman), which initiated the style that inspired both Berlioz and Wagner. In the overture there are the beginnings of the "leit motif" or leading theme which serve to express in music ideas, thoughts or even the characters of persons in the play. This had been done to some extent before, by Mozart and Beethoven, but Weber was the first composer to develop it to great dimensions. He composed the operas *Euryanthe* and *Preciosa*, which met with some success, and in 1826 he visited London to conduct the first performance of *Oberon* at Covent Garden. He died in London in the same year, at the house of Sir George Smart, the Organist to the Chapel Royal.

Meanwhile the Italian style of opera found its champion in Gioachino Rossini (1792–1868). At the early age of 21 he produced *Tancredi*, which met with instant success. A "Rossini fever" soon overtook Europe, and many operas of the type of *Tancredi* appeared in rapid succession. Among the best known are *The Barber of Seville* and *La Cenerentola* (Cinderella). In 1829 Rossini produced his great *William Tell*, after which very little music ever appeared from his pen. The characteristics of his music are a sense of humour, a vivacious style, and elaborate arias calculated to show off the technical powers of the singers.

The greatest composer of opera in the nineteenth century was Richard Wagner (1813–1883). He was born in Leipzig. Soon after his birth his mother became a widow; she shortly afterwards married an actor so that Wagner early came under the influence of the theatre which did much to fashion the form of the works he was later to produce. He was a great admirer of Beethoven and Weber whose works he knew intimately: from Beethoven he learnt the power of logical symphonic development, and from Weber the art of expressing the dramatic. The first important opera was *Rienzi*, completed in 1840: he was living in Paris at the time and used all possible influence to have it performed there, in the city then considered to be the centre of operatic art. He was unsuccessful: *Rienzi* was first produced in Dresden in 1842, where he was soon afterwards appointed conductor. *Rienzi* was written in the style of favourite composers of the day, Meyerbeer and Spontini, but in *The Flying Dutchman*, *Tannhauser* and *Lohengrin*, he began to put into practice new theories which he had formulated. These were the theories of Music Drama. Wagner maintained that the three chief means of expression are gesture, poetry and sound. In the old operas, gesture and poetry had to be forced into the background by an excessive insistence upon the importance of the music. He considered that in the ideal work, all three means of expression should be of equal importance; the music and poetry should enhance each other, and there should be a "fellowship of the arts." The general public, too, would have to treat art as a serious employment and not merely as an amusement. He wrote his own librettos for the music dramas, but, while it must be admitted that he transformed the whole style and scope of opera, he failed to uphold his complete theories because he was a far greater musician than he was a poet. To listen to Wagner's works with an intelligence it is necessary to understand something of his use of the "leit motif," or leading theme.

On hearing any of Wagner's later works, the listener is certain to be struck by the frequent appearance of a few striking themes. This is due to the system of the "leif motif." Wagner uses a short theme to represent an idea, a thought, or a person, and by the skilful development, modification, and intensification of it, describes in the music all that is being unfolded upon the stage. The orchestral parts of these music dramas are not merely empty accompaniments such as satisfied many composers of the Italian opera: they consist of a marvellous weaving together of all these threads of "leit motif" into a texture of incredible beauty, with a rational and inevitable bearing upon what is happening on the stage.



From a photograph formerly in the possession of the late Sir Charles Villiers Stanford]

Giuseppe Verdi

Wagner's other great works, which are immensely popular at the present day are:—

1. *The Ring of the Nibelungs.* This is a trilogy consisting of *The Rhinegold* (an introduction), *The Valkyrie*, *Siegfried*, and *The Dusk of the Gods.* It took about 25 years to complete, though there was a break of some years' duration in the composition of *Siegfried* during which Wagner wrote *Tristan and Isolde.*
2. *Tristan and Isolde.* First performed 1865.
3. *The Mastersingers of Nuremberg.* First performed 1868.
4. *Parsifal.* First performed 1882.

Wagner had been exiled from Germany in 1848 for his part in a revolution. The next period of his life was spent in Switzerland, but King Ludwig II of Bavaria invited him to take up his quarters in Munich, and granted him a pension for life. He designed a theatre for the production of his music dramas, which was finally built in the little town of Bayreuth. Here the orchestra is hidden, so that even in the most boisterous passages the voices of the singers are not overpowered, and a rigorously strict tradition for the production of Wagner's works has been built up and maintained to the present day. Every year admirers from all over the world make a pilgrimage to this great shrine of Wagner's art.

In Italy, contemporary with Wagner, was living Guiseppe Verdi (1813–1901). His early operas were in the generally accepted Italian style, though of a much higher standard than those written by his contemporaries Donizetti and Bellini. They are very melodious and make great demands upon the executants; *Rigoletto*, *Il Trovatore*, *La Traviata*, and *Aida*, are still great favourites with operatic audiences. For sixteen years after the production of *Aida* in 1871 Verdi composed no further operas. At that time his work was held in far higher esteem than Wagner's; but during those sixteen years Wagner's theories had been accepted by practically all operatic composers. When *Othello* was produced in 1887 and *Falstaff* in 1893, it was noticed that Verdi had succumbed in a great measure to the influence of his great German contemporary.

The nineteenth century is noteworthy also for the rise of the Russian School of Opera. Russia in its relatively backward state of civilization had played an almost insignificant part in the development of European music. During the nineteenth century, however,

[Photo: Deutsche Verlags Anstalt.

MOUSSORGSKY

there seems to have been an increased interest in the folk lore of the country, and her composers used these old legends and melodies as the bases of operas. One of the earliest of such composers was Glinka (1804–1857), who wrote *A Life for the Tsar* and *Russian and Ludmilla*, which are thoroughly Russian in character. Moussorgsky (1835–1881) with his *Boris Godounov* and Borodin (1834–1887) with his *Prince Igor* are also important members of this band of composers. One of the last of this Russian School was Rimsky-Korsakov (1844–1908) whose chief works are *Ivan the Terrible*, *The Snow Maiden* and *The Golden Cockerel*, Tschaikowsky (1840–1893), too, was the composer of a number of operas, such as *Eugene Onegin*, but he was less of a nationalist than those already mentioned, and more under the Italian influence.

Space will not permit of more than the mere mention of many other composers of opera.

FRANCE

- Berlioz (1803–1869)
  - Benvenuto Cellini (1838)
- Gounod (1818–1893)
  - Faust (1859)
  - Romeo and Juliet (1867)
- Bizet (1838–1875)
  - Carmen (1875)
- Saint-Saens (1835–1921)
  - Samson and Delilah (1877)
- Debussy (1862–1918)
  - Pelléas and Mélisande (1902)

ITALY

- Mascagni (1863–   )
  - Cavalleria Rusticana (1890)
- Leoncavallo (1858–1919)
  - Pagliacci (1892)
- Puccini (1858–1924)
  - La Bohème (1896)
  - Tosca (1900)
  - Madame Butterfly (1904)
  - Turandot (1926, after being completed by F. Alfano)

[Photo: Leiser, Berlin.

RIMSKY-KORSAKOV

AUSTRIA

Johann Strauss (1825–1899)
  Die Fledermaus (1874)

GERMANY

Humperdinck (1854–1921)
  Hansel and Gretel (1893)
Richard Strauss (1864–)
  Salome (1906)
  Elektra (1909)
  Der Rosenkavalier (1911)
Alban Berg (1885–)
  Wozzeck (1922)

ENGLAND

It is only in comparatively recent years that composers in this country have devoted their attentions to the writing of operas. Among the most successful may be mentioned the following:—

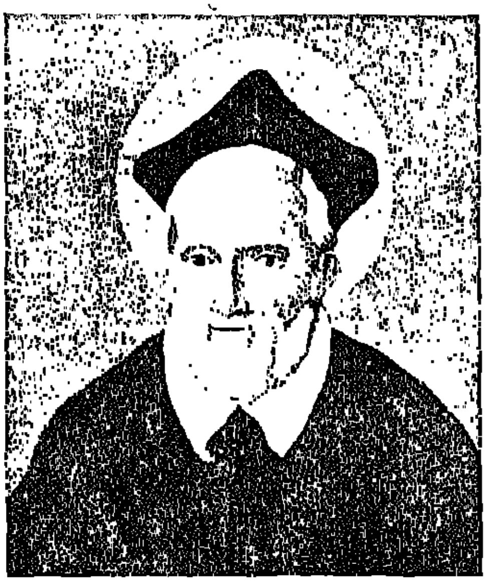
Balfe (1808–1870)
  Bohemian Girl (1843)
Stanford (1852–1924)
  Shamus O'Brien (1896)
  Much Ado about Nothing (1901)
Boughton (1878–)
  The Immortal Hour (1914)
Ethel Smyth (1858–)
  The Boatswain's Mate (1916)
Vaughan Williams (1872–)
  Hugh the Drover (1924)
  Sir John in Love (1928)
Delius (1863–1934)
  A Village Romeo and Juliet (1902)
Holst (1874–1934)
  The Perfect Fool (1921)
  At the Boar's Head (1925)

GRAMOPHONE RECORDS

TITLE	COMPOSER	RECORD NUMBER
MAY SWEET OBLIVION LULL THEE	*Monteverdi*	Columbia DB500
BOIS EPAIS	*Lully*	H.M.V. DA1097
NYMPHS AND SHEPHERDS	*Purcell*	H.M.V. E413
OMBRA MAI FU (Largo)	*Handel*	H.M.V. DB1901
WHERE'ER YOU WALK	*Handel*	Columbia DB9615
DANCE OF THE BLESSED SPIRITS	*Gluck*	H.M.V. D1784
CHE FARO	*Gluck*	H.M.V. D1490
OVERTURE TO "THE MARRIAGE OF FIGARO"	*Mozart*	H.M.V. C2194
O ISIS AND OSIRIS	*Mozart*	H.M.V. C1625
OVERTURE TO "OBERON"	*Weber*	H.M.V. DB1675
OVERTURE TO "WILLIAM TELL"	*Rossini*	H.M.V. B3857–8
ROOM FOR THE FACTOTUM	*Rossini*	H.M.V. DB1478
SIEGFRIED IDYLL	*Wagner*	H.M.V. DB2634–5
PRIZE SONG FROM "THE MASTERSINGERS"	*Wagner*	Columbia 9924
DONNA E MOBILE	*Verdi*	H.M.V. B4251
CELESTE AIDA	*Verdi*	H.M.V. DB3225
BALLET MUSIC FROM "PRINCE IGOR"	*Borodin*	H.M.V. D1528
SIRS! YOUR TOAST	*Bizet*	H.M.V. C1400
FLOWER SONG	*Bizet*	H.M.V. C2684
ON WITH THE MOTLEY	*Leoncavallo*	H.M.V. C2662
ONE FINE DAY	*Puccini*	H.M.V. C1957
OVERTURE TO "HANSEL AND GRETEL"	*Humperdinck*	H.M.V. DB1758
FAERY SONG	*Rutland Boughton*	H.M.V. B3905

ORATORIO

IN Grove's *Dictionary of Music and Musicians*, the term "oratorio" is defined as follows:—"A dramatic poem, usually of a sacred character, sung throughout by solo voices and chorus to the accompaniment of a full orchestra, but—at least in modern times—without the assistance of scenery, dresses or action." Two main differences between the forms of oratorio and opera are disclosed in this description—the sacred character of the subjects of the former, and its performance without the use of the stage and histrionic devices.



From a portrait in "Merry England", February, 1891]

ST. PHILIP NERI

During the Middle Ages there had been frequent performances of miracle plays, whose purpose was to impress upon the people the teaching of the church in a graphic and simple manner they could easily understand. At the end of the sixteenth century, St. Philip Neri (died 1595), was using such plays for the purpose of instruction in the Oratory of a new church which he had recently built; he founded the congregation of Oratorians, and the type of play he produced became known as an oratorio.

The Renaissance had brought about a revival of interest in the old classical works. The contrapuntal style of music which had reached perfection in the works of Palestrina and Byrd at the end of the sixteenth century gave place to a choral and harmonic style, and composers began to give much greater attention to the dramatic and emotional import of the words they set. Early oratorios were in very much the same style as the operas composed by Peri and others of the time, who were the pioneers in what was called the "New Music;" they contained solos, recitatives, solos with accompaniments for an orchestra. One of the earliest of oratorios was *The Representatives of the Soul and Body* by Cavaliere (born about 1550) who worked in Rome at the same period as the early composers of opera were working in Florence.

The most important of the early composers of oratorio was Carissimi (1604–1673) who did for the form of oratorio what was effected for opera by Monteverdi. He did more for the perfection of recitative than any other Italian of the period, he infused an element of pathos and dramatic force in his music and wrote accompaniments which display lightness and considerable variety. His best known works are settings of *Jephtha* and *Jonah*. Some of these early oratorios were actually performed upon a stage. Later this spectacular presentation fell into disuse, and indeed many subjects were chosen, such as the Passion, which made stage performances undesirable, if not impossible.

Germany had become a great stronghold of Protestantism, and it is not surprising to find that her composers showed considerable interest in the writing of church and other sacred music. Some of the great chorales were written at this early period; *Ein feste Burg* (Luther); *O Sacred Head* (Hassler); and *Nun danket* (Cruger); and they had a great influence on the work of German composers. Heinrich Schütz (1585–1672) has been called "the father of German music." His music was influenced to some extent by the traditional music of the Roman Church, but at the same time, there are traces of the effect of the essentially German character of the chorale. He was the last great composer to be influenced by the plainsong of the church; later composers used the chorale. The chief works by which he is known are his settings of the *Passion* which later served as models for J. S. Bach.

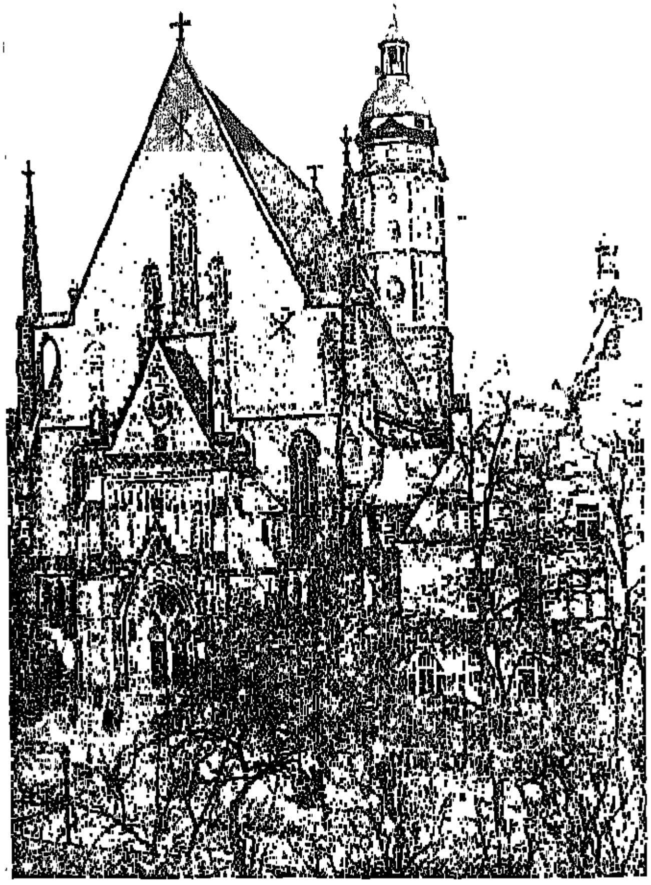
From a painting in the University Library, Leipzig]

SCHÜTZ

John Sebastian Bach (1685–1750) was one of the greatest composers of all time. He wrote music of all kinds, vocal, orchestral, chamber music, with the sole exception of opera. The greater part of his oratorio music was written after 1723, when he was Cantor, or director of music at St. Thomas' Church, Leipzig. Here, in addition to his duties of training the choir and playing the organ, he had to compose music for the special services which were frequently held in the church. His output was phenomenal—about 290 church cantatas, settings of the Passion, the Magnificat, and the B minor Mass, which some scholars declare to be the greatest work in the whole realm of music.

The church cantatas vary considerably in scope and importance. Among the best and most well-known are *God's time is best*; *Sleepers, wake*; and *A stronghold sure*; many were written for special occasions, Easter Day, the Ascension, Whitsuntide, the fifth Sunday after Trinity. Many of them are based on familiar chorales; some are for solo voice only, some for chorus only, some with choruses, solos and duets, and with accompaniments for various combinations of instruments. Possibly this variety was due in some degree to the forces he had available at the time of their composition.

It had long been the custom in the Church during Holy Week to recite the Gospel, which describes the Passion of Our Lord, in a dramatic way to make it the more impressive. Instead of the whole passage being read by the priest, the words of Our Lord would be spoken by one reader, another would be responsible for the narrative, another for the words of Pontius Pilate, and so on. This method of reciting the Passion seems to have appealed strongly to German composers including Schütz and Bach, who, when setting the Passion to music, followed the same procedure. Bach wrote two settings, *The Passion according to St. John* and *The Passion according to St. Matthew* (1729). The latter is by far the greater work, but the *St. John* contains many passages of great beauty, pathos and dramatic force. The plan adopted in the general construction of the work is identical in both cases. They both open with a long, highly developed chorus, which really performs the function of an overture, as it were, preparing the performers and hearers for the work proper: the story is told by a narrator (tenor voice); the words of Christ are given to a bass singer; the words of other characters are distributed to various singers, and for the parts of the band of disciples and the crowd, the chorus is used. At various points well-known chorales, suitably harmonised, are introduced, which were originally sung by the whole congregation, who thus were able to take their part in the great act of devotion and meditation; there are also many solos, which are in the nature of commentaries upon the various incidents in the Passion, and whose purpose is to bring home to all the significance of Our Lord's Sacrifice. Both works conclude with a



[*Photo: E.N.A.*

The Thomaskirche, Leipzig

chorus of great beauty—a lament, or dirge. Bach shows great skill in characterisation; the music to which the words of Christ are sung is dignified and noble, that for the words of Judas is harsh; the thunder and lightning, the cockcrow, the weeping of Peter and the rending of the veil in the Temple are all skilfully suggested. Speaking of *The St. Matthew Passion*, Sir Hubert Parry describes it as "the richest and noblest example of devotional music in existence."

The *Christmas Oratorio* (1734) is constructed on similar lines. It is divided into six parts, and is really a collection of cantatas to be sung on various days during the Christmas festival. The *Mass in B minor* is a work in gigantic proportions, not intended to be performed at a liturgical service. Like the *Christmas Oratorio* it is rather of the nature of a series of cantatas. Bach here shows his unequalled skill as a craftsman in all the accepted forms of music, a master of immense technical skill, and reveals himself as a man who had plumbed the very depths of human experience.

Contemporary with Bach was George Frederick Handel (1685–1759). As described in the article on **Opera,** the earlier part of his career was devoted to works for the theatre. It was not until after the failure of his operatic ventures that he turned seriously to the writing of sacred music. He seems to have been attracted by Old Testament subjects, for he has a long list of oratorios, many of them still frequently performed, called *Deborah, Samson, Judas Maccabaeus, Saul, Esther, Israel in Egypt*, etc. His greatest work, probably the most popular of all oratorios, is *Messiah*, first performed in Dublin in 1742. It is said that the whole work was written down in twenty-three days, an almost incredible achievement. The plan is somewhat akin to that of the Bach *Passions*, though there are no chorales and fewer recitatives. The work is divided into three parts, the first dealing with the Nativity, the second with the Passion and Resurrection, and the last with the more theological aspect of the Redemption.

The styles of these two eighteenth century composers differed considerably. Handel was more theatrical in his effects; he could obtain striking results by simple means as in the *Hallelujah Chorus* or *I know that my Redeemer liveth*: at the same time, he could write deeply expressive music as shown in the Passion section of *Messiah*. Something of his mastery of technique may be seen in the great *Amen Chorus*. Bach's music is much more involved, there is a prodigious weaving of parts and a greater depth of expression, sincerity and religious feeling.

During the remainder of the eighteenth century, there was only one oratorio which approached the *Messiah* in popularity, that was *The Creation* by Franz Joseph Haydn (1732–1809). It was composed late in life, after his two visits to London, in 1798 when he was sixty-six years of age. There is nothing in the work to suggest old age: there is all the freshness and buoyancy of youth, and the whole work is pervaded with the charm and delight of Haydn's inimitable spontaneity. The chorus *The heavens are telling* is worthy to rank beside anything that Handel wrote. The importance that Haydn attached to the composition of *The Creation* may be assessed from what he himself said about it. "Never was I so pious as when composing *The Creation*. I knelt down every day and prayed God to strengthen me for my work." Another work which at first was almost as popular as *The Creation* was *The Seasons*, 1801, his last important work. In addition, he wrote a number of masses and a Passion called *The Seven Words from the Cross* for the cathedral in Cadiz.

A junior contemporary of Haydn's was Wolfgang Amadeus Mozart (1756–1791), whose whole life and career were of extremely short duration, completed during the middle part of that of Haydn. His contribution to this form of music was not great. By the year 1768 he had already composed a *Stabat Mater* and a *Mass*, commissioned by the Emperor. Other Masses followed, of which the Twelfth is still performed, but the work of a sacred nature by which he is chiefly remembered is the *Requiem*, composed actually on his death bed in 1791. He was unable to finish it, but it was completed by his friend and pupil, Sussmayer.

Beethoven (1770–1827) too, was not a prolific composer of church music, though he wrote one or two important works. In 1807 he wrote a *Mass in C* for Prince Esterhazy who had been Haydn's patron. There is also a short but second-rate oratorio, *The Mount of Olives*, written about 1800, containing a quite well-known Hallelujah chorus; but his chief contribution in this sphere was the *Missa Solemnis in D*, written between the years 1818–1822. It was intended for the Installation of the Archbishop of Olmutz, but owing to his preoccupation with other compositions was not ready in time. The *Mass* is one of the great works of musical art; its performance calls for a competent and experienced body of performers.

Much of the music of Bach had by this time been forgotten: the *St. Matthew Passion* had not been performed since the composer's death, for its depth of feeling and religious fervour had proved too much even for the Germans themselves. About the year 1828 an event of great importance for the music of Bach occurred: a performance of the *St. Matthew Passion* was given, with Mendelssohn (1809–1847) as conductor. This was a great success, and marked the beginning of a new interest in the music of the great master; societies were formed for the publication of his music, choirs came into being for its performance, and the impetus supplied by the Mendelssohn production has continued ever since, until at the present day Bach is one of the most well-known and the best loved of all composers. In addition, Mendelssohn's own oratorios are of considerable importance, both for their intrinsic value and for the influence they exerted upon other composers. His first work in this form was *St. Paul* (1836) which, when it was performed in this country shortly afterwards, established him as the worthy successor of Handel. The *Hymn of Praise* (Lobgesang) appeared in 1840 at a festival in honour of the 400th anniversary of the art of printing. Actually the work is a symphony in four movements, the last movement consisting of the vocal portion: in this no doubt, he was working upon the model of Beethoven's *Ninth Symphony*, whose last movement also is a choral one. In both these works, *St. Paul* and *Hymn of Praise*, something of the influences of Bach may be noted, by the introduction of chorales. His greatest oratorio, *Elijah*, was produced at the Birmingham Festival in 1846: it met with tremendous success, and even now is as popular as the *Messiah* itself. The overture depicting the drought, the dramatic intensity of the Baal choruses, the tenderness of *It is enough* all helped to establish Mendelssohn as a great composer. One feature which marks all his music, vocal and instrumental, is its correctness: he had a facile style, which made everything sound correct with the result that there is a certain monotonous and obvious quality about some of his work. Others copied his style; unfortunately for them they had not his unbounded gifts, and so their inferior work has long been forgotten. Mendelssohn had neither the depth of religious feeling shown by Bach nor the sense of the dramatic displayed by Handel, so that his oratorios have not the enduring qualities of those of his two predecessors.

One of the lesser composers of oratorio, whose work nevertheless enjoyed considerable success at the time, was Louis Spohr (1784–1859). He was a great violinist; he wrote a tutor on violin playing, and many pieces for the instrument in addition to compositions in many other branches of music. On several occasions he visited England to produce his oratorios. The work by which he is chiefly remembered is

The Last Judgment (1825); it is still often performed in this country during the season of Advent, but its weakness, as is the case with much of his work, lies in its intensely chromatic style, which produces an unpleasant cloying effect that is foreign to all great music that endures the ravages of time. Rossini (1792–1868) whose fame rests chiefly on his operatic achievements wrote a *Stabat Mater* (1832): as might be expected, it is operatic in style, and while it is pleasing as music, it cannot be claimed that Rossini has enhanced the significance of that deeply religious subject. Verdi (1813–1901), the great composer of Italian opera, wrote at least one important work on a sacred subject, *Requiem* (1874). When first produced, it met with hostile criticism on the grounds of insincerity: time has proved that such an objection was unfounded. Although it is not a fitting work to be performed in church, the grandeur of conception and dramatic force which Verdi reveals, stamp it as a work of first rate importance.

[Photo : E. O. Hoppé

HUBERT PARRY

In France, too, composers were devoting some attention to this form. Berlioz (1803–1869) wrote one sole important oratorio, *L'Enfance du Christ*. Gounod (1818–1893), famous for his opera *Faust*, wrote *The Redemption*. César Franck (1822–1890), a Belgian by birth who became a naturalised French subject, was organist for many years at the church of St. Clothilde, in Paris. Much of his music is of a sacred nature; his chief oratorio *The Beatitudes* appeared in 1870.

The real homes of the oratorio form are England and Germany. One of the outstanding works of this period is the German *Requiem* by Johannes Brahms (1833–1897), probably one of the greatest works of its kind in existence. The composition of this work had been in his mind for some time, and on the death of his mother in 1865, he definitely undertook its completion. Though his religious views were generally considered unorthodox, he here reaches a depth of religious expression unsurpassed since the time of Beethoven. Another work, very beautiful but of much smaller dimensions, was *The Song of Destiny*, written a few years later. He further influenced the course of oratorio writing by his interest in the Bohemian composer Antonin Dvorak, who wrote a sincere and beautiful setting of *Stabat Mater* (1876–1877) which is regularly performed even at the present day.

The contributions by British composers during the last seventy years are a noble and permanent monument to the revival in British music initiated by Stanford, Parry and Elgar. Earlier in the nineteenth century a few works of merit had been produced by Sterndale Bennet, who was Principal of the Royal Academy of Music, and Sullivan, but the general standard was low. Hubert Parry (1848–1918), a distinguished scholar, an

[*Photo: Herbert Lambert*

C. V. STANFORD

admirer of and writer on Bach, was a prolific composer whose style, while being in some respects reminiscent of that of Bach, was essentially English. He selected the words he intended to set with the utmost care, and endeavoured to make the music fit them in every detail and subtlety of meaning. In early life he came under the influence of that great composer of English church music S. S. Wesley (1810–1876), a member of the family of religious reformers, and thoroughly absorbed all the best he found in his work. His chief oratorios are *Blest Pair of Sirens* (1887) a magnificent piece of writing for 8-part chorus, *Job* (1892) and *Saul* (1894). The latter two have never become really popular because of a certain stiffness and pedantry, though they both contain many excellent passages. *The Songs of Farewell* written at various times during the last few years of his life cannot be termed oratorios, but they are worthy of mention as being amongst Parry's finest work in the field of sacred music.

Charles Villiers Stanford (1852–1924), an Irishman, a friend of Brahms, took a great part in the revival of music in England. Though he wrote no oratorio, his great output of music of the church, as well as his secular cantatas and instrumental works wrought a great deal in directing the trend of music amongst his contemporaries and later composers, many of whom were his pupils. He wrote a setting of *Stabat Mater* for the Leeds Festival, 1907.

The greatest composer of the twentieth century to date is Edward Elgar (1857–1934). He was born in Worcester, one of the centres of the annual Three Choirs Festivals, where many of his works received their first performance. His first oratorio was *The Light of Life* (1896). Shortly afterwards, a number of other important works, including

[*Photo: Herbert Lambert*

VAUGHAN WILLIAMS

the *Enigma Variations*, appeared, which firmly established him as a composer of the front rank. In 1900 appeared *The Dream of Gerontius*, a setting of the poem by Cardinal Newman. The first performance was in Birmingham, at which both singers and hearers were puzzled by its style and idiom; also the Catholic nature of the words did not make for its success in some quarters. Subsequent performances proved that it was a work of undeniable merit; it became widely popular and greatly loved, until now it occupies a position of high esteem beside the Bach *Passions*, *Messiah* and *Elijah*. It was Elgar's intention to write a great trilogy, but only two parts of it were ever completed: they are *The Apostles* (1903) and *The Kingdom* (1906).

In conclusion, the following short list of more recent works may be added.

Holst (1874–1934)—*Ode to Death. Hymn of Jesus.*
Vaughan Williams (1872–)—*Towards the Unknown Region* (1907). *Mass in G minor* (1923). *Sancta Civitas* (1926).
William Walton (1902–)—*Belshazzar's Feast* (1931).

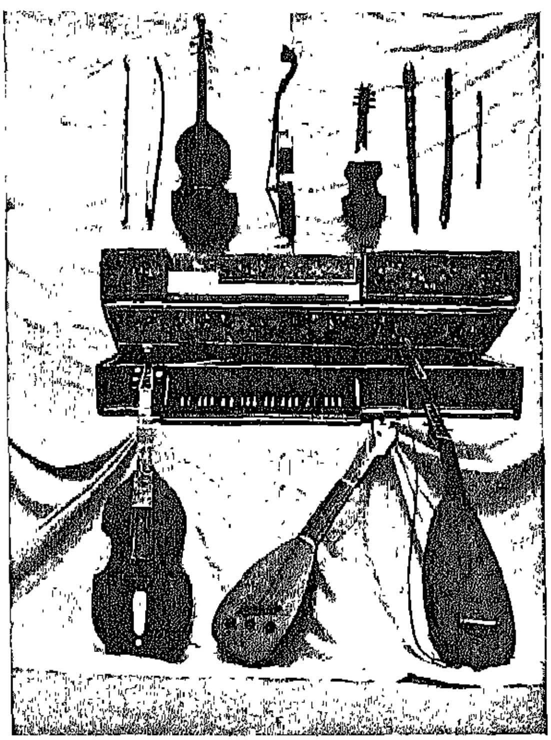
GRAMOPHONE RECORDS

TITLE	COMPOSER	RECORD NUMBER
PSALM CXI from "GERMAN MASS"	*Schütz*	Parlo R1025
JESU, JOY OF MAN'S DESIRING	*Bach*	H.M.V. E445
MY HEART EVER FAITHFUL	*Bach*	H.M.V. C2571
'TWAS IN THE COOL OF EVENTIDE	*Bach*	H.M.V. B3581
SOUND AN ALARM	*Handel*	Columbia DB994
HALLELUJAH CHORUS	*Handel*	H.M.V. C2489
I KNOW THAT MY REDEEMER LIVETH	*Handel*	H.M.V. B2656
PASTORAL SYMPHONY	*Handel*	H.M.V. C2071
WITH VERDURE CLAD	*Hadyn*	H.M.V. C2773
THE HEAVENS ARE TELLING	*Hadyn*	H.M.V. C2513
O REST IN THE LORD	*Mendelssohn*	H.M.V. C1631
IT IS ENOUGH	*Mendelssohn*	H.M.V. C2072
I WAITED FOR THE LORD	*Mendelssohn*	H.M.V. C1398
HOW LOVELY IS THY DWELLING PLACE	*Brahms*	H.M.V. DV1951
MAGNIFICAT in B♭	*Stanford*	H.M.V. C1849
PRAISE TO THE HOLIEST	*Elgar*	H.M.V. D1242

INSTRUMENTAL MUSIC

A STUDENT of the history of music would notice at once the relatively late development of instrumental music: in fact, there is very little of any consequence before the sixteenth century. By this time vocal music had reached an advanced state; composers had achieved great skill in writing melodies, they had acquired the art of effective and complex part writing and by the end of the century were to appear the masterpieces of Palestrina and Byrd. All this music was sung unaccompanied by instruments. Before the sixteenth century there were few instruments that could be used satisfactorily for a composer's purpose, whereas in the human voice he had an instrument ready made.

In Tudor times composers began to turn their attention to music for instruments, the viol, the lute and the virginal, the first two being string instruments and the last a keyboard instrument. At first the music that was written for them was not of a very distinguished order. Many of the madrigals were published as being "apt for voices or viols," showing that as yet composers had not discovered a style that was specially suited for instruments, but were forced to apply purely vocal methods to express themselves in this entirely new medium. The style adopted for keyboard instruments consisted very largely of scales and arpeggios, an attempt to find a method of writing which might strictly be termed "instrumental." Early composers for instruments were fond of writing *Airs and Variations* and music in various dance forms which they published in sets known as *Suites*. Among the earliest composers of note must be mentioned Giles Farnaby (1560–1600) and Dr. John Bull (1562–1628), who is reputed to be the composer of the English National Anthem. The most remarkable and one of the most valuable collections of English seventeenth century instrumental music is a volume known as *The FitzWilliam Virginal Book*: among the contributors are Bull, Farnaby, Byrd, and Gibbons. From other collections of the period too, such as *Lady Neville's Virginal Book*, and *Parthenia* (the first music for the virginals printed from engraved plates in England) the beginnings of instrumental music may be studied.



[*By courtesy of Messrs. J. M. Dent & Sons, Ltd.*

SIXTEENTH CENTURY MUSICAL INSTRUMENTS

(From Edward H. Naylor's *Shakespeare and Music.*)

Among the early composers in France who wrote instrumental music were François Couperin (1668–1733) and Jean Philippe Rameau (1683–1764). Couperin, who succeeded Lully as organist of the private chapel in the Palace at Versailles, was the descendant of a long line of musicians. His music, based on the style of Lully, was written for the harpsichord, a successor of the earlier virginal. It is particularly suited to the qualities of the instrument, and contains an enormous number of shakes, trills and other ornaments and embellishments which were the means used in those days to emphasise notes on instruments which had not the variety of tone nor the sustaining powers of the modern pianoforte. He arranged his short pieces, for which he used the old dance forms of minuet, rigadoon, bourée, musette, etc., into sets called *Ordres*.

In Italy lived and worked the great Domenico Scarlatti (1685–1757) the son of the famous Alessandro Scarlatti who had founded the Neapolitan School of Opera. It is interesting to note that he was born in the same year as J. S. Bach and Handel. He met Handel in Rome, where it seems that a kind of competition was held to decide the relative merits of the two composers. In music for the harpsichord, the matter was left an open question, but as regards music for the organ Scarlatti was the first to admit Handel's vast superiority. He was a man of an inventive turn of mind: many of

[*Photo: Europhot*

THE BASS VIOL OR VIOL-DA-GAMBA

the devices which seem commonplace to us startled the world when they were introduced by Scarlatti in his playing and composition. He was constantly discovering new effects and new methods of playing, such as crossing of hands, and so in some ways he may be looked upon as the founder of the modern style of playing. He wrote many examples of Sonata, a short piece in AB form. The term "sonata" means "sounding," and was used to distinguish the music from a "cantata," which means "singing."

[*Photo: Rischgitz*

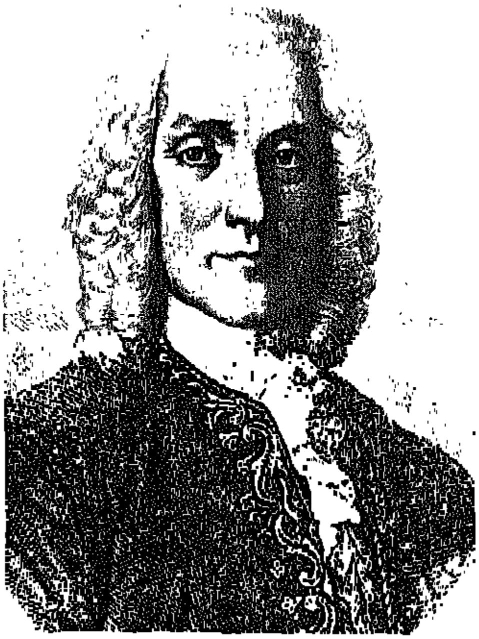
John Bull (c. 1562–1628)

From the print by J. C. Flipart after André Bouys]

F. Couperin

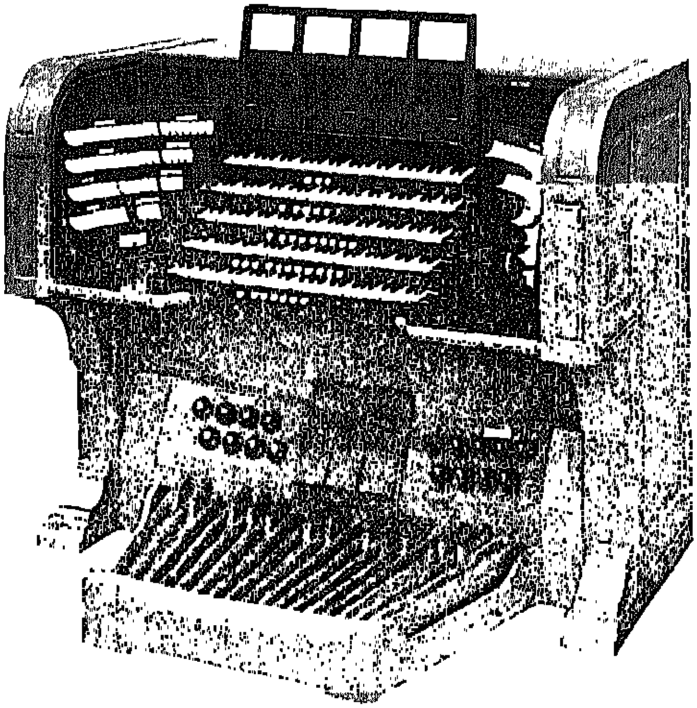
Violin playing, too, was being developed by Corelli (1653–1713), Geminiani (1680–1761) and Tartini (1692–1770). The making of violins had become a great art; to this period belong Amati, Guarnerius and Stradivarius whose instruments which are now still in existence are valued at fabulous sums. Corelli is the earliest of great violinists. Not only was he a great player and a great composer, but he is important for the influence that he exerted on later composers. His works may be placed in two classes:—(*a*) Sonata; (*b*) Concerto. From the former has been evolved the modern violin sonata, in which the violin is accompanied by the pianoforte, and from the latter, the modern violin concerto, in which the violin as a solo instrument is accompanied by the orchestra; e.g., violin concertos by Beethoven, Brahms, Elgar. Tartini, like Corelli and others, not only played the violin and wrote music for it, but developed the technique required for the mastery of performance upon it. For a period he was subjected to the trials of intense poverty, and spent two years of study and contemplation in the monastery at Assisi. Here he wrote his famous *Devil's Trill* sonata. The story goes that he dreamt that he bargained with the devil for his soul: he handed his violin to the devil who performed upon it with astonishing skill. When he awoke, Tartini endeavoured to reproduce the sounds he had heard; he considered it his best sonata, but nevertheless was conscious that it fell far below what he had heard in his dream.

By the seventeenth century, the organ, after a long period of slow development, was claiming the attention of composers. The most famous of seventeenth century organists was Frescobaldi (1583–1643) who for some time was organist at St. Peter's, Rome. He had a great reputation for his improvisations and extempore performances and it is said that at his first performance at St. Peter's he attracted an audience of 30,000 persons. In Northern Germany there were a number of distinguished organists, the most famous of whom was Buxtehude (1637–1707). Some of his compositions are still played.



Domenico Scarlatti

In the realm of organ music in the eighteenth century, Bach (1685–1750) was unsurpassed. He was widely known as a skilful player, and some of his best music was written for the instrument he so greatly loved. As might be expected, his organ music reveals extensively the influence of the church; the superb choral preludes, the masterly preludes and fugues, all show an amazingly varied technique which rarely obtrudes upon the beauty of the music itself. During his career he held a number of posts, the most important of which were at Weimar, Cöthen and Leipzig. His compositions were very much the result of his duties at each of these particular places; at Weimar, he was an organist, and here he wrote some of his finest organ works, including the *Fugue in G major* (*Jig*), the little *E minor Prelude and Fugue* and the *Prelude and Fugue in D major*; at Cöthen, where he was director of music to the Duke, he had no organ, and to this period belong the suites and other works for the harpsichord: his final post was at St. Thomas', Leipzig, where he was engaged in the composition of the great choral works. Music by this time was vastly different from what it had been a century and a half before. Those were the days of the old modal and contrapuntal style: now it was freer in style, and much more attention was given to writing in the major and minor scales and to the modulation of music from key to key. A great controversy, far too technical to discuss in detail here, arose. It was found that in order to allow music to move to different keys without offending the sensitive ears of musicians, the system of tuning keyboard instruments then in vogue, was not satisfactory. Some musicians held to the old method, but others, including Bach, supported equal temperament as it was called—a system of tuning by which the octave was divided into twelve equal semitones. This was a compromise, which has since been universally adopted, and which to all intents and purposes is reasonably satisfactory. The difference between the two systems can easily be heard by listening to a tune played on a keyboard instrument tuned to equal temperament, as is always done now, and comparing the result with the effect produced by a good violinist playing the same tune according to the old system of tuning, just temperament. The violinist's playing is strictly in tune, the keyboard instrument player's only approximately so. To show his adherence to the new system, Bach compiled a collection of *Forty-Eight Preludes and Fugues for the Well Tempered Clavier.* In this volume there are two examples in every major key and two examples in every minor key. Not only does Bach completely cover the whole gamut of keys, but he expresses in the most sublime manner the whole range of human emotion.



[*By courtesy of Messrs. J. W. Walker & Sons, Ltd.*

CONSOLE OF DONCASTER PARISH CHURCH ORGAN

Handel's instrumental music is inferior to that of his great contemporary and of much less importance than his own choral works. Bach expressed some of his deepest thoughts in his instrumental music, but Handel usually wrote music of this kind for some special occasion; e.g. *The Water Music* for a royal procession on the Thames, and the organ concertos for the intervals in performances of his oratorios, to enable the organist to display his skill as a player. In spite of this rather casual attitude towards instrumental music, much of it is very pleasing, and his variations usually known as *The Harmonious Blacksmith* are still popular.

Bach marks the end of a period, usually known as the period of "free counterpoint;" Hadyn and Mozart in the next generation mark the opening of a new phase in which the style of music became more chordal and harmonic, and in which there is the perfection of the classical forms of the sonata and symphony, reaching its culmination in the works of Beethoven. The connecting link between the styles of the two periods was provided by the works of Bach's own sons C. P. E. Bach (1714-1788) and J. C. Bach (1735-1782) whose early symphonies were the models upon which Haydn worked.

During the greater part of his career, Haydn was engaged as composer and conductor to various Austrian nobles, where it was his duty to compose music and conduct performances by the Duke's private band. This band would consist of possibly only a small number of players, but at any rate Haydn was certain that anything he wrote, quartet or symphony, would be performed; and, in addition, with players always at hand he could be constantly experimenting with new effects. His output was prodigious —over a hundred symphonies, about eighty quartets, over twenty concertos and forty-four sonatas. Many of his works have had titles given to them by admirers, so that they might be readily identified; the name has been chosen from some characteristic in the work itself or because of some circumstance of its composition; for example, *The Oxford Symphony* (written when he received the degree of Mus.D. at Oxford, and performed in the Sheldonian Theatre), *The Farewell Symphony* (towards the end of which the players gradually leave, the conductor only remaining), *The Surprise Symphony* (with the sudden crashes in the otherwise quiet slow movement). In 1790 Haydn was persuaded by the violinist Salomon to come to London, on the understanding that he was to produce one new work at every concert given under Salomon's direction. So successful was his visit that he came to London again in 1794, under much the same agreement: the twelve symphonies he wrote for these concerts are called the *London Symphonies* (two sets). All his instrumental works have a charm and delight which make them irresistible in their appeal—vigorous first movements, stately minuets, and rapid final movements based on themes which one writer has described in modern parlance as "streamlined, built for speed."

It is interesting to note how both Haydn and Mozart learnt from each other's work. Haydn was already in middle age by the time his junior contemporary began writing; naturally Mozart would study Haydn's work, but what is much more remarkable is, that later on, when Mozart had matured, Haydn recognised his (Mozart's) powers, studied his music and modified his style, chiefly in quartet writing, on the lines of Mozart's.

Mozart began his musical career as an infant prodigy: he and his sister were taken on a tour of the principal cities of Europe at a very early age. This gave them a splendid introduction to the world, but Mozart later experienced considerable indifference and apathy towards himself before he was finally acclaimed as one of the great masters. Later he visited Mannheim, where there was an excellent orchestra, under its conductor Stamitz; here Mozart learnt a great deal about the possibilities of orchestral writing, which served him in good stead when he came to write symphonies. In 1778 he visited Paris, one of the chief centres of music. Disappointment awaited him here; although he produced one important work, the *Paris Symphony*, he did not create the impression he had hoped for, because the city was far too engrossed in the Gluck-Piccinni opera controversy.

Success awaited him at Prague, where his operas were being played, and where his *Prague Symphony* was first performed. His greatest symphonies are the *Haffner*, the *G minor*, the *E flat*, and the *C major* (*Jupiter*). The piano sonatas show a marked advance upon those of Haydn which are now largely forgotten, and much of his chamber music is of the highest order and still frequently played. His piano concertos in *D minor* and the *Coronation*, and the overtures to his operas *Magic Flute*, *Marriage of Figaro*, among the best of all instrumental music, are often found in modern concert programmes.

Beethoven met Mozart in Vienna in 1787 when Mozart was about to visit Prague for the second time at the height of his popularity, and Beethoven was a youth of seventeen years old, on the threshold of his career. After hearing him play, Mozart turned aside to his friends and said, "Pay attention to him; he will make a noise in the world some day or other." Beethoven's works may be divided into three distinct periods: the first, in which may be seen the influence of Haydn, his master, and other earlier composers; the second when his own individual style begins to emerge in such works as the *Eroica Symphony*; and the final when he reached the height of his powers as revealed in his last few quartets, the *Choral Symphony*, the *Mass in D*, and the latest sonatas. Music owes more to Beethoven than it does to any other individual composer. The whole art was enriched and expanded in every direction as a result of this greatest musical genius of all time. So powerful and wide-spread was his influence that it will be possible, in the course of a short article, merely to outline a few of his achievements. The depth of expression was such as had never been equalled before; compare a sonata by Mozart and one of the later ones by Beethoven, and the difference is apparent: the same may be said of the symphonies and quartets. He increased the number of movements in such works: hitherto the number had generally been three or four, but Beethoven sometimes used five and an introduction of considerable dimensions in addition, all of which were of a much more highly developed nature than anything in the works of his predecessors. New types of movements appeared, particularly the "scherzo:" the word means "joke" or "jest." The scherzo was used in the place of the more stately minuet, which seems frequently to have been too placid a movement for the expression of Beethoven's vigorous thoughts and ideas. The pianoforte was usurping the position of the old harpsichord; it offered not only a greater variety of tone quality, but a far wider range in power, of which Beethoven made the greatest possible use in his sonatas for the instrument. His symphonies called for

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BEETHOVEN

greater skill from his players, and new instruments began to appear in the orchestra. In later works can be traced the beginnings of the Romantic movement, of which more will be said later.

Beethoven was a great performer. He himself often played his pianoforte works on their first public presentation, or conducted the first performances of his orchestral works; he also was a competent string player, which would account for the unsurpassed writing to be found in his quartets. His important works are far too numerous to discuss in any detail; suffice it to add a short list of the most well-known in the various branches of instrumental composition.

SONATAS.

Opus 13 in C minor	(Pathétique)
Opus 27 No. 2 in C minor	(Moonlight)
Opus 53 in C	(Waldstein)
Opus 57 in F minor	(Appassionata)
Opus 106 in B flat	(Hammer-clavier)
Opus 47 Violin Sonata	(Kreutzer)

CONCERTOS.

Opus 37 in C minor	
Opus 73 in E flat	(Emperor)
Violin Concerto	

SYMPHONIES.

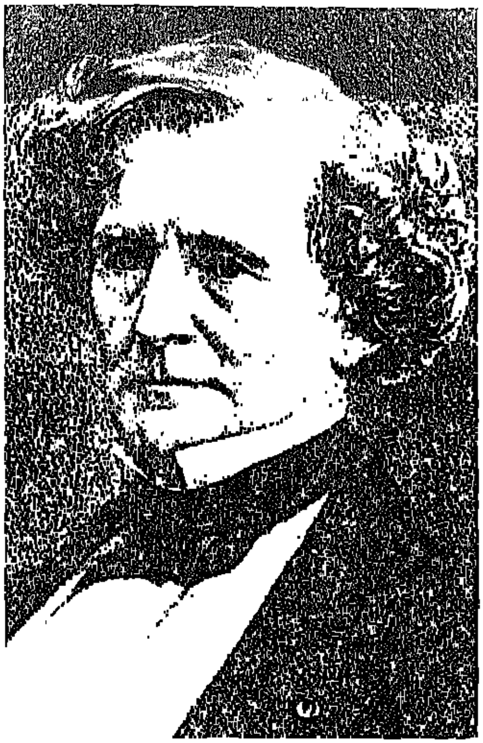
Opus 55 in E flat	(Eroica)
originally dedicated to Napoleon; but re-dedicated *Eroica* (to the memory of a great man) when Napoleon proclaimed himself Emperor.	
Opus 67 in C minor	
Opus 92 in A	
Opus 125 in D minor	(Choral)
so called because the last movement contains a part for solos and chorus.	

CHAMBER MUSIC.

Opus 59. Rasoumowsky quartets.
Opus 130, 131, 132, 135, his last quartets.

Bach, Handel, Haydn, Mozart and Beethoven are usually called classical composers, and later writers such as Schubert, Mendelssohn, Schumann, Berlioz and Chopin, Romantic composers, though it is impossible to draw a definite line of demarcation. Certainly the later works of Beethoven reveal romantic tendencies. Briefly, the difference between classical and romantic music is this. In the so-called classical music the composer writes in one of the classical forms—the fugue, sonata or symphony—and is concerned with the proper construction of the movements and the logical development of his themes according to a rough generally accepted scheme: in romantic music the composer may write in one of the classical forms, but he uses the medium of music for the impression of extraneous thoughts. For example, a Haydn symphony is pure music; e.g., it is concerned with nothing but the beauty of sound and its logical presentation; but Mendelssohn's *Italian Symphony* is in some degree descriptive in that he reflects his impressions of a holiday spent in Italy. Carried further, Romantic music developed into programme music; here the composer endeavours to write music to describe some extraneous ideas in detail. He may attempt to express in music scenes or events as Wagner does in his music dramas; he may attempt to portray a character as Richard Strauss does in *Don Juan*, or Elgar in *Falstaff*. Some composers, such as Debussy, try to describe experiences, as he does in *Jardins sous la pluie* or *La Cathédrale engloutée*; others endeavour to be still more pictorial in their effects as Mossolov in *Music of Machines*, or Honegger (born 1892) in *Pacific* 231; in both these last examples the effects are most realistic, but one wonders whether that is the real function of music.

Now, to trace the romantic movement in a little more detail it will be necessary to return to Beethoven. There is no doubt that in some of his later works he was concerned not only with the beauty of the music itself but also with the expression of his own inner feelings. The same is true of Franz Schubert (1797-1828). His chief claim to fame is probably in his enormous output of songs, but in addition he wrote a number of instrumental works worthy of mention. He had a remarkable gift for melody; in all his works there are pleasing tunes, and even in his symphonies, if a new tune occurred to him, he would include it, even though such a thing were not in strict accord with the general principles of form. One common weakness in many of his instrumental works is the lack of coherence, due in some measure to the introduction of new tunes, rather than the development of his principal themes. His best symphonies are the one in *B flat*, the *7th in C major* (called by the Germans the "heavenly long"), and the *8th in B minor*, consisting of only two movements and called the *Unfinished*. There is much contention in these days as to the relative values of various kinds of music, but the *Unfinished* is a work which appeals to the popular taste as well as to the reasoned judgment of trained musicians; it is beloved by all. The best examples of his chamber music are *Trio in B flat*, "*Trout*" *Quintet* (which contains a set of variations on the tune of his own song *The Trout*) and a *Quartet in D minor*, published after his death, called *Death and the Maiden* quartet. His pianoforte works include sonatas, music in dance forms and a number of impromptus.



From a lithograph by Paul Maurou]

BERLIOZ

Hector Berlioz (1803-1869), a French composer, was a very important member of the Romantic school, whose music is pictorial to the highest degree. Nearly all his instrumental works have titles (they are not merely called *1st Symphony*) which give the clue to the general trend of the ideas expressed in the music. His chief symphonies are *Harold in Italy*, *Romeo and Juliet*, in which parts for solo voices and choruses are introduced, and *Fantastic Symphony*, whose sub-title is *Episode in the life of an Artist*. This last work is full of imaginative passages, and his skill as a writer for the orchestra is illustrated by a wonderful effect of a thunderstorm he obtains by a subtle use of tympani tuned to various notes. He struggled in Paris for a long period to gain recognition, and in the end he was successful in overcoming the intense and bitter opposition he encountered in earlier days.

The nineteenth century produced many first-rate composers whose work carried forward the cause of Romanticism at a great pace. Mendelssohn wrote a great deal of descriptive instrumental music. Some of his symphonies show traces of outside influences (*The Scotch*, and *The Italian*), the music to *A Midsummer Night's Dream* is a perfect musical representation of Shakespeare's play; the *Violin Concerto*, the *Songs without words* and the chamber music contain much music that is of a descriptive character.

Robert Schumann (1810–1856), too, was a leader of the movement. To his credit stand a number of symphonies, a 'cello concerto which is probably the best work he wrote for any string instrument, and a pianoforte concerto. His wife, Clara Schumann, was a brilliant pianist who, during a number of concert tours, introduced her husband's work in many cities in Europe. He was friendly with Mendelssohn and Brahms; the latter was proclaimed by him in a musical periodical of which he was the editor, as the musical genius for whom the world was waiting.

Franz Liszt (1811–1886), one of the outstanding pianists of all time, was the inventor of a new form called the "symphonic poem." A work in this form is usually of large dimensions, and contains a development of themes on symphonic lines and is always based on a definite programme. Two of these symphonic works are called *Dante* and *Faust*: he wrote also a number of rhapsodies, pianoforte concertos, and a piano sonata, all of which call for a stupendous technical ability in performance, such as he himself possessed.

The "poet of the piano" as he is often called, Frédéric Chopin (1810–1849), wrote almost solely for the one instrument. On those occasions when he attempted to express himself by other means, the result was usually unworthy; even the writing of the orchestral parts of his pianoforte concertos is elementary and ineffective. He understood the special qualities of the pianoforte as no other musician has ever done, and both as a performer upon, and a composer for the instrument, he stands unequalled. Every composer of pianoforte music since his time owes something to Chopin. He was a Pole by birth, but spent most of his life in Paris. Much of his music combines the ardour and passion of the Pole with the grace, polish and vivacity of the Parisian. His compositions were numerous, and are so well-known that it must suffice merely to mention the chief of them: *Polonaises* (Polish Dances), *Studies* (which have artistic and musical value, as well as technical), *Mazurkas*, *Nocturnes* (a new form which had originated with John Field, 1782–1837), *Preludes*, *Ballades*, and *Waltzes*. The well-known *Funeral March* is one of the movements in his *Sonata in B flat minor*.

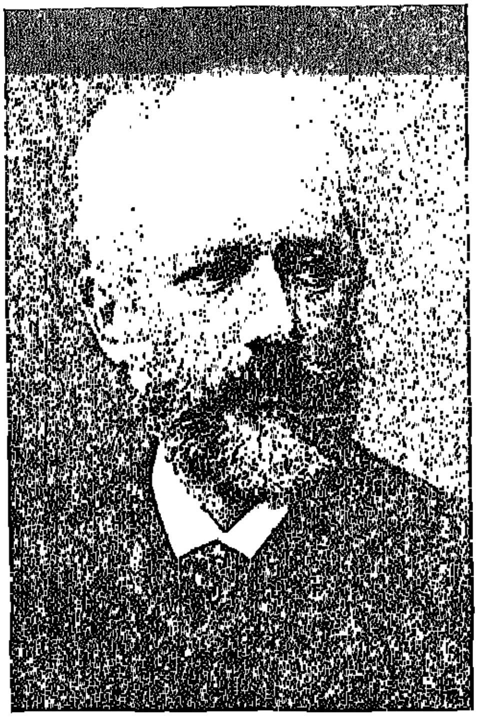


Photo: Deutsche Anstalt, Berlin

TCHAIKOVSKY

There was one composer whose works show something of a reaction to intense Romanticism, Johannes Brahms (1833–1897). He considered that music was going beyond its true function in being so intensely romantic, and so his works show an attempt to curb the principles of romanticism and to link them with the fundamental principles of the older classical style. A bitter feud sprang up between the two schools—the romantics, whose champion was Wagner, and the reactionaries, led by Brahms who incidentally had no wish to take part in such a battle. So strong was the cleavage, that it was not considered possible to enjoy and appreciate the music of the two masters,—a supporter of Wagner was automatically an opponent of Brahms, and vice versa: in fact, Brahms is often referred to as the last of the great classical writers. He was a fine craftsman; all his works, which make immense technical and artistic demands upon the performers, reveal his great skill in combining workmanship with profound musical thought. When his first symphony (in C minor) appeared comparatively late in life in 1867, it was hailed as the *Tenth Symphony*; hitherto, the greatest symphony was considered to be Beethoven's *Ninth* (Choral), and the extreme compliment was paid to Brahms by thus declaring him to be a worthy successor of Beethoven. He wrote three other symphonies (*D, F and E minor*), all of outstanding merit. The pianoforte concertos, the violin concerto (first performed by his friend the great violinist Joachim), the variations for orchestra, the sonatas for violin and pianoforte and a large output of chamber music, stamp Brahms as a musical genius, meriting an exalted position in company with Bach and Beethoven.

Mention must be made of Tchaikovsky (1840–1893). His work, some of which is of a gloomy nature, a reflection of his disposition, is melodious, passionate, and shows features which are characteristically Russian. He wrote some chamber music, a number of symphonies, the most well-known of which are the *E Minor* and the one in B minor (*Pathétique*), a *Pianoforte Concerto in B flat minor*, and a number of tone poems (off-shoots of the *Symphonic Poems*) including *Romeo and Juliet* and *Francesca da Rimini*. The suite *Casse Noisette* (Nutcracker) enjoys wide popularity.

A striking feature that developed during the nineteenth century was nationalism. Music composed by musicians of various countries began to take on an individual style, largely as a result of a revival of interest in the national folk lore. Some composers actually used some of the old folk tunes as the basis of their writings, while others copied the style. Thus German music, intense and profound, differed from French, graceful and more superficial; Russian music, with its mysticism and sense of gloom and oppression, could not be mistaken for British music which seems imbued with the special qualities of sincerity and determination that are typical of our own race. The following list gives the names and principal works of some composers who may be called "nationalists."

RUSSIA.

Borodin (1834–1887).
Chamber music. Dances from *Prince Igor*. Three Symphonies.
Rimsky-Korsakov (1844–1908).
Chamber music. *Antar Symphony*. *Scheherazade* (a suite based on the stories of the Arabian Nights).

SCANDINAVIA.

Grieg (1843–1907).
Chamber music. Pianoforte Concerto in A minor. Pianoforte music.

BOHEMIA (Czecho-Slovakia).

Smetana (1824–1884).
Chamber music. Overture *The Bartered Bride* (an opera).
Dvorak (1841–1904).
Slavonic dances. Chamber music, including the *Nigger Quartet*. Symphonies, including the *New World*. The *Nigger Quartet* and the *New World Symphony* are based on tunes that Dvorak collected during a visit to America.

SPAIN.

Albeniz (1860 1909).
    Spanish Dances.
Granados (1867–1909).
    Spanish Dances.
de Falla (born 1876) (and reported killed in the Spanish Civil War). Chamber music. Ballets—*The Three Cornered Hat*, and *Wedded by Witchcraft*.

[*Photo: E.N.A.*

SIBELIUS

FINLAND.

Sibelius (born 1865).
    Finlandia (Tone poem). Seven symphonies. Violin concerto. Chamber music.

Some authorities claim for him the greatness of Beethoven and Brahms. Time alone can decide that.

Three of the greatest English composers of modern times, Elgar, Delius and Holst, all died in 1934. Many scholars hold that Edward Elgar (1857–1934) was the greatest musical genius produced by this country since the days of Purcell, in the seventeenth century. His output was enormous and contains examples of all kinds of music except opera. The greatness of his work was not recognised until the appearance of the *Enigma Variations* in 1899, but from that time onwards the appearance of all his works was awaited with eagerness and enthusiasm. He was a great master of orchestration, and his general style is grand and noble.

His works are:—*Enigma Variations*. (Each variation is a portrait of a friend.) Two Symphonies. Overtures *In the South*, *Cockaigne* (a picture of London life). Symphonic Poem, *Falstaff*. Violin Concerto. 'Cello Concerto. *Pomp and Circumstance* Marches. Introduction and Allegro for Strings.

Frederick Delius (1863–1934) was a native of Bradford, but spent a good deal of his life in France. In later years he was a complete invalid; his music was dictated to an amanuensis, a laborious task for both composer and writer, especially in view of the complex nature of the music. His chief works are *Appalachia* (variations, with a chorus), *Paris* (The Song of a great City), *Brigg Fair* (an English Rhapsody), *On hearing the first Cuckoo in Spring*. He also wrote some concertos and chamber music.

Gustav Holst (1874–1934), especially in his early work, is influenced by folk lore; in fact the *Somerset Rhapsody* (1907) is based entirely on tunes of that county. The *Beni Mora Suite* (1910) give his impression of a holiday in Algeria. An interesting work for strings is the *St. Paul's Suite* (1913) written for the pupils of St. Paul's Girls School, where he was music master for many years. One of his most important instrumental works was the suite *The Planets*, for a large orchestra: the vigour of *Mars*, the jollity of *Jupiter* and the effect of old age as shown in *Saturn* are triumphs in the art of pictorial music.

In the twentieth century, and specially since the Great War, music of a high standard is being written in great quantities all over Europe and in America. New methods are being tried, new forms evolved, new kinds of scales coming into use, and a completely new outlook on the harmonic structure is being adopted. Generally speaking, music is becoming more chaotic and complex, just as modern life is, and though much contemporary music is experimental and may not endure for a long period, yet it must be admitted that composers everywhere are extremely active in their efforts to promote the art. A list of some of the chief modern composers with the names of their chief compositions is added.

[Photo : Elliott and Fry

DELIUS

[Photo : Herbert Lambert

GUSTAV HOLST

GREAT BRITAIN.

Vaughan Williams (born 1872).
    Fantasia on a theme by Tallis. London Symphony. Pastoral Symphony. Chamber music.
John Ireland (born 1879).
    Chamber music. Pianoforte music. Orchestra prelude, *The Forgotten Rite*.
Arnold Bax (born 1883).
    Symphonies. Tone poem, *Tintagel*.
Arthur Bliss (born 1891).
    Chamber music. Colour Symphony, in which each movement is to express in music the colour named at the beginning.
William Walton (born 1902).
    Overture, *Portsmouth Point*. *Façade*; a symphony; *Viola Concerto*.

RUSSIA.

Sergei Rachmaninov (born 1873).
Preludes for pianoforte. Pianoforte concertos. Symphonies.
Igor Stravinsky (born 1882).
The Rite of Spring. The Fire Bird.
Serge Prokofiev (born 1891).
Chamber music. Symphonies. Concertos.

GERMANY.

Richard Strauss (born 1864).
Symphonic poems, *Don Quixote, Till Eulenspiegel's Merry Pranks; Alpine Symphony.*
Arnold Schönberg (born 1874).
Pierrot Lunaire. A chamber symphony.
Paul Hindemith (born 1895).
Chamber music. Orchestral music.

FRANCE.

Maurice Ravel (born 1875).
Chamber music. Piano concerto for the left hand. Suite, *Le Tombeau de Couperin.* Suite, *Mother Goose.*
Darius Milhaud (born 1892).
Suites.

GRAMOPHONE RECORDS

TITLE	COMPOSER	RECORD NUMBER
VARIATIONS ON "THE KING'S HUNT"	*Bull*	Columbia 5713
FANTASY FOR A CHEST OF VIOLS	*Weelkes*	Columbia 5714
LES JEUNES SEIGNEURS	*Couperin*	H.M.V. B8122
LE TAMBOURIN	*Rameau*	H.M.V. DA977
PASTORALE	*Scarlatti*	H.M.V. E528
SONATA IN A	*Scarlatti*	H.M.V. E537
SONATA XII, FOR VIOLIN AND HARPSICHORD	*Corelli*	Columbia DB501
SONATA, "DEVIL'S TRILL"	*Tartini*	H.M.V. DB1786-7
REJOICE NOW, ALL YE CHRISTIAN MEN	*Bach*	H.M.V. B3483
TOCCATA IN D MINOR (Dorian mode)	*Bach*	H.M.V. C2610
AIR ON THE G STRING	*Bach*	H.M.V. B2913
HARMONIOUS BLACKSMITH	*Handel*	H.M.V. C2667
WATER MUSIC SUITE	*Handel*	Columbia DX538-9
ANDANTE CANTABILE (Quartet in F)	*Haydn*	Columbia 9658
ANDANTE (Clock Symphony)	*Haydn*	H.M.V. D1669
FINALE (Clock Symphony)	*Haydn*	H.M.V. D1671
OVERTURE, "MARRIAGE OF FIGARO"	*Mozart*	H.M.V. C2194
MENUET ("Haffner" Symphony)	*Mozart*	H.M.V. D1783
MENUET AND FINALE SYMPHONY IN G MINOR	*Mozart*	Columbia DX33
1ST MOVEMENT, "MOONLIGHT" SONATA	*Beethoven*	H.M.V. DB2405
2ND AND 3RD MOVEMENTS, "PATHETIQUE" SONATA	*Beethoven*	Columbia 9363
1ST MOVEMENT, SYMPHONY No. 5	*Beethoven*	Columbia DX516
SCHERZO, SYMPHONY No. 7	*Beethoven*	H.M.V. DB2988
2ND MOVEMENT, KREUTZER SONATA	*Beethoven*	H.M.V. DB2410
MARCHE MILITAIRE	*Schubert*	H.M.V. D1286
UNFINISHED SYMPHONY	*Schubert*	Parlophone E10672-4

GRAMOPHONE RECORDS—*continued.*

TITLE	COMPOSER	RECORD NUMBER
BALLET MUSIC FROM "ROSAMUNDE"	*Schubert*	Columbia L2125
OVERTURE, "ROMAN CARNIVAL"	*Berlioz*	Columbia LX172
THREE SONGS WITHOUT WORDS	*Mendelssohn*	Columbia DB454
OVERTURE, "MIDSUMMER NIGHT'S DREAM"	*Mendelssohn*	H.M.V. C1883-4
SCHERZO "MIDSUMMER NIGHT'S DREAM"	*Mendelssohn*	H.M.V. D1671
SCENES FROM CHILDHOOD	*Schumann*	Columbia L2321
POLONAISE IN A MAJOR	*Chopin*	Columbia DX441
THREE WALTZES	*Chopin*	H.M.V. DB2313
HUNGARIAN DANCES	*Brahms*	H.M.V. DB1896
FINALE, SYMPHONY No. 2	*Brahms*	Columbia LX519
PRELUDE TO "LOHENGRIN"	*Wagner*	H.M.V. D1258
NUTCRACKER SUITE	*Tchaikovsky*	Parlophone E11269-71
FLIGHT OF THE BUMBLE-BEE	*Rimsky-Korsakov*	Columbia 9908
PEER GYNT SUITE	*Grieg*	Columbia 9309-10
SLAVONIC DANCES	*Dvorak*	ParlophoneE10936
SPANISH DANCES	*Granados*	H.M.V. C1553-4
FINLANDIA	*Sibelius*	H.M.V. DB1584
TINTAGEL	*Bax*	H.M.V. C1619-20
WALTZES FROM "ROSENKAVALIER"	*Strauss*	Columbia LX60
POLICHINELLE	*Rachmaninoff*	Columbia 9368
BOLERO	*Ravel*	Columbia LX48-9
POMP AND CIRCUMSTANCE MARCH No. 4	*Elgar*	H.M.V. DB1936
ENIGMA VARIATION No. 9	*Elgar*	H.M.V. D1155
ON HEARING THE FIRST CUCKOO IN SPRING	*Delius*	Columbia L2096
JUPITER, FROM "THE PLANETS"	*Holst*	H.M.V. D1129
CHILDREN'S OVERTURE	*Quilter*	H.M.V. C2603

SONG

THE art song, as we know it to-day, consists of two main component parts; the voice part and the instrumental accompaniment. Composers had mastered the art of writing for the voice long before they undertook the solutions of the problems of instrumental writing (see **Instrumental Music**), so that for the present purpose the study of the art song must commence at the end of the sixteenth century, the "Golden Period" in the history of music in this country.

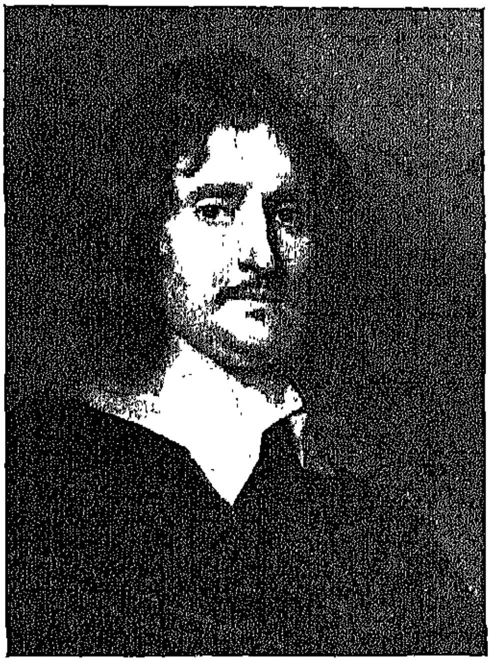
It is true that before that time songs existed. There were the folk songs, whose composition dates back to antiquity and the names of whose composers is unknown. In addition there were the songs of the wandering minstrels of the Middle Ages. Such songs, the subjects of which were often deeds of love and daring, would sound crude to modern ears, but with their simple melodies and elementary accompaniments they undoubtedly contributed something to the development of this form of music.

A great impetus was given to song writing when in the sixteenth century composers began seriously to turn their attention to the art of writing for instruments. Madrigals were sung in parts and so were complete in themselves, but except in special cases, music for a solo voice needs some sort of instrumental accompaniment. At first the accompaniments were extremely simple; they generally followed the voice part and added simple chords to the melody. As experience in instrumental writing increased, so accompaniments became more elaborate and independent of the vocal part. In Elizabethan times the favourite instrument for accompanying the voice was the lute, an instrument of the guitar family which was widely used in those days. Singers would often accompany themselves.

From the painting by Tintoretto] [*Photo: Europhot*

THE LUTE PLAYER

The frequent use of the lute for accompaniment purposes had led to the using of the word "lutenist" to describe the early composers of the solo song. Thomas Morley (1557–1603), a pupil of William Byrd, and who probably at one time was organist of St. Paul's Cathedral, was early in the field as a song composer. He not only wrote songs himself (among which were settings lyrics by Shakespeare, who was a contem- rary) but he published them, as well examples by other composers, under a oyal Patent granted to him to print song oks of all kinds and music paper. One the chief of the lutenist school of com- osers was John Dowland (1563–1626). e was a singer, and one of the most accom- ished performers upon the lute in Europe. his songs it is very easy to notice the fluence of the madrigal style; the modal aracter, and the ce rhythmic style. ar lines were now ming into use, a actice which tends make rhythm ore rigid with the egular recurring ccents in each ar. Such a feature as foreign to the adrigal style, and t first composers und the employ- ent of the bar ne and all that it mplies irksome. orley had a great ift of melody, and rote songs chiefly bout love, in a sad nd plaintive mood.


From a painting in the Music School Collection, Oxford]
HENRY LAWES

After this period f unequalled excell- nce, music in the ime of Charles I and he Commonwealth suffered a decline, though t was not suppressed to the extent that is ometimes supposed, for Cromwell and some f the other leaders were fond of music. he best writer of this period was Henry awes (1595–1662). His most important ork was the incidental music to Milton's *omus*, but the freedom of style so apparent n Dowland is lacking.

Secular music was encouraged after the eturn of Charles II. He had been much mpressed by French music during his exile, and when he arrived back in England the people were only too ready to adopt his innovations after the dull and difficult period they had recently passed through. The great composer of the Restoration period was Henry Purcell (1658–1695). Besides being organist of Westminster Abbey and writing much church music, he found time during his short but brilliant career to write music for the theatre. In these works, such as *Dido and Aeneas*, *King Arthur* and *The Fairy Queen* are to be found some fine songs: *Dido's Lament*; *Come unto these yellow sands*; *I sail upon the dog star*; *I attempt from love sickness to fly*; and *Fairest Isle* may be mentioned as typical. The style is not unlike that of Handel with the oft repeated words and long florid passages.

Bach and Handel wrote few if any songs which may strictly be placed in the category of the type of song now under consideration; but in their many cantatas and oratorios appear an enormous number of arias for solo voice which certainly did influence and develop the art of writing for voices with instrumental accompaniment. Examples already mentioned in the section on **Oratorio** will supply suitable illustrations of this style. Handel wrote many *Da Capo* Arias. The words *Da Capo* (*D.C.*) means to "repeat from the beginning." Thus, often these arias by Handel are in ABA form, with the last section an exact repetition of the first; when this is the case Handel frequently did not write out the last section, but at the end of the second added *Da Capo*, or *D.C.* Both Bach and Handel generally wrote in a florid style; there are very few words, but these are repeated a number of times, and there are often long florid passages sung to a single word or syllable. The later ideal of setting the words with meticulous care, so that the music enhanced their subtle shades of meaning and sense, was not a characteristic of this period.

From the painting by J. Zoffany] [*By permission of Arthur F. Hill, Esq.*

THOMAS ARNE

Many of our so-called national songs, often inspired by some event of historic importance, date from the Restoration and following period. To the seventeenth century belong such well-known songs as *Begone, dull care*; *The Oak and the Ash*; *The Vicar of Bray*; *Under the Greenwood Tree* and *Here's a health unto His Majesty*. During the Jacobite rebellions such songs as *Farewell, Manchester*; *The Hundred Pipers*; and *Charlie is my darling* appeared, all expressing loyalty to Bonnie Prince Charlie. Even the arrest and trial of the six bishops for an alleged insult to the King was responsible for an Old Cornish ballad called *The Song of the Western Men*. Two English composers of the eighteenth century must be mentioned, namely, Dr. Thomas Arne (1710-1778) and Dr. William Boyce (1710-1779). Both wrote church music (Boyce edited a collection of Cathedral music), and both left fine examples of solo songs:—Arne settings of *Where the bee sucks*; *Blow, blow thou winter wind*, and *Rule Britannia*, and Boyce the celebrated *Hearts of Oak*.

Haydn and Mozart must be passed over quite rapidly. Their contributions to music for solo voice and instrumental accompaniment are contained chiefly in more extended works, oratorios and operas. Beethoven wrote a number of songs which are not particularly distinguished, and which therefore added little to the development of the art song.

One of the most important of all song writers is Franz Schubert (1797-1828), sometimes called the "Father of Modern Song." He was a junior contemporary of Beethoven, and a pioneer of the romantic movement (see article on **Instrumental Music**). It was mentioned earlier that the two chief parts of a song are the melody and the accompaniment, in the writing of both of which Schubert wrought a transformation. He had an amazing gift of melody; all his songs and indeed, his instrumental works too, contain a wealth of easy flowing tunes; there is a danger sometimes of their becoming trite, but by his superb artistry he generally prevents any such catastrophe. A careful examination of the melodic part of any song will reveal the skill with which the tune has been wedded to the words; it brings out their deepest meaning, often suggests moods and ideas that the ordinary mind would not have detected, and the climax in the music occurs simultaneously with that of the words. A change of note or the rearrangement of the position of the words would destroy much of the beauty and significance of the song, so well do the two fit. The accompaniment in Schubert's songs is of far greater importance than that in any song of his predecessors. He held that the accompaniment should not merely support the voice, but that it was an integral part of the song, sometimes of even more importance than the voice part itself. His accompaniments do not simply follow the voice part or add some sort of simple chord harmony just for the sake of completeness; they are always the expression of some general idea contained in the words, and so form a kind of background. For instance, the accompaniment to *Whither* represents the flowing of water and the turning of the mill wheel; that in *Margaret at the Spinning Wheel*, exactly suggests the action of spinning—when during the course of the song Margaret so carried away with her thoughts ceases spinning, the "spinning" accompaniment stops too, with dramatic effect. Schubert was a voracious reader with a fine literary taste; he was quick to see the possibilities of a poem and often set one to music spontaneously. He was a prolific composer and in addition to a vast quantity of instrumental music, wrote over six hundred songs, many of which are among the finest things in all music. Some of his best, such as *Margaret at the Spinning Wheel* and *The Erl King* were written when he was still a youth.

The Erl King is a masterpiece; it contains some real character portrayal, shows a keen sense of the dramatic, and so plainly illustrates Schubert's principles of song writing that a brief analysis may be helpful. The story, a German legend, concerns a father who is taking his little son who is ill, on a journey. The night is stormy, tempestuous and fearful; to add to the terror and misery of it all, the boy becomes delirious and imagines he sees an evil spirit, the Erl King, endeavouring to seize him from his father's arms. As the journey proceeds the storm becomes more intense; when the destination is reached, the child is found to be dead. Notice the following points in Schubert's magnificent setting. There are four characters, a narrator who describes the position of things at the beginning and end of the story, the father, the son and the Erl King. From the style of the music which Schubert has written for each character it is perfectly easy to know which of the four is speaking. By various devices, such as writing certain phrases at a higher pitch each time they occur, the dramatic intensity of the song is increased. The accompaniment represents the storm, and, by its insistent rhythm, the galloping of the horse. A most dramatic point occurs at the end of the song when the journey is ended; the boisterous accompaniment ceases, there is a short pause, and the boy's death is announced in a short phrase in recitative style, accompanied by simple chords in a minor key. This song is but one example of Schubert's genius for song writing.

Most composers since Schubert's time have written songs; in some cases song writing has been merely one branch of their art, while in others it is the foundation upon which their artistic reputation rests.

Robert Schumann (1810–1856) wrote a large number of songs, practically all between 1840 and 1841, the time when he was courting Clara Wieck, who subsequently became his wife. They show the influence of Schubert's work, but are warmer and more passionate in style. Among some of his best known are *The Almond Tree*, *The Two Grenadiers* and a song cycle called *Poet's Love*.

Brahms (1833–1897), too, was a song writer, in whose work may be traced the influence of Schubert. He wrote about two hundred songs, some in the style of folk songs which he greatly loved, and many profound and broad in conception like the *Four Serious Songs*, his last published composition. At one time it was declared that his songs were unvocal, but now there is rarely a song recital programme without a "Brahms" group. Unlike Schubert,

After a daguerreotype taken in Hamburg in 1850

ROBERT AND CLARA SCHUMANN

Brahms was a craftsman who was intensely self-critical; although there is not always the same grace and charm about his songs that is to be found in Schubert's there are never the serious lapses of which the earlier composer is sometimes guilty. His accompaniments are always interesting and suitable, besides being skilfully written for the instrument. In the songs of the folk song type, they are never over elaborate; at all other times they are suggestive of some idea contained in the words, and often are of such a nature that only a first-class performer can play them. An excellent idea of Brahm's achievements as a song writer may be gained from a study of *Sunday*; *The Sandman*; *The Blacksmith*; *Sapphic Ode*; *Lullaby*; *Gracious and kind art thou, my Queen* and the *Four Serious Songs*.

Hugo Wolf (1860–1903), a composer who wrote practically nothing except songs, is by some scholars considered to represent the culmination of a style of song writing. In early life he showed an unusual interest in music and literature, those two arts that later he was to weld with such ability as to produce something unique in art. His parents at first opposed the idea of a career in music, but later they sent him to Vienna to study, where he met Wagner, of whom he became an ardent admirer and disciple. As was common at the time this declaration of support for Wagner naturally meant intense dislike for Brahms, and during four years when he was writing for a musical magazine he encountered the bitter enmity of many musicians because of his outspoken articles on Brahms. He had the gift of keen penetration of the sense and meaning of words; no other composer has ever set poems to music with such skill that the two seem inseparable, or as one writer has put it, that it appears as if Wolf wrote both the words and the music. Frequently he adopted Wagner's method of using a "leit motif" or leading theme. The pianoforte part is of equal importance with the voice part, so that his compositions in this branch of music are not strictly speaking for voice and accompaniment, but works for voice and pianoforte. He set many poems by Goethe and Morike, who were his favourite authors. Typical examples of his art are *Secrecy*, *The Meeting*, *The Boy and the Bee*, and *The Huntsman's Song*.

Admirable songs have been written by Richard Strauss, Debussy, and Gabriel Fauré as well as by many British composers. The revival of music in this country is marked by the appearance of songs by Parry and Stanford. Most nineteenth century writers had produced songs of a very poor quality, except possibly Maude Valerie White, but the standard rapidly improved towards the end of the century. Parry was most careful in the selection of his words; he usually set poems which were essentially English in character, and showed a special pleasure in using words by old writers—Shakespeare, Lovelace, etc. In his twelve sets of English lyrics there are songs covering a wide range of style and treatment, containing graceful and elegant melodies as well as apt and musicianly accompaniments. Their popularity has been marred by a certain sense of pedantry which some people find in them; they are perhaps a little studied in their effect, but nevertheless contain much beautiful music which is among the best of the whole of Parry's output.

[Photo : E.N.A.

HUGO WOLF

Stanford, an Irishman, showed considerable leaning towards poems of his native country. Many old Irish tunes were arranged by him, and to these he added accompaniments which, while often simple, enhance the beauty of the melody and seem eminently fitting. Among his best songs are *An Irish Idyll*; *Songs of the Sea*; and *A Sheaf of Songs from Leinster.* Song writing in England received much encouragement from the labours of that inimitable singer Harry Plunket Greene, who by his perfect diction showed that English is a singable language, and by his performances and writings raised the standard of English singing and the general level of popular taste. Many of the songs of both Parry and Stanford were first sung in public by him.

Song writing appeals strongly to modern British composers, almost all of whom have produced some excellent examples.

Frederick Cowen (1852-1936) — *Onaway awake*; *Border Ballad.*

Edward Elgar (1857–1934)—*Sea Pictures*; *O soft was the song*; *Pleading.*

Vaughan Williams (born 1872)—*Songs of Travel*; *Silent Noon*; *Five Mystical Songs.*

Roger Quilter (born 1877)—Settings of many Shakespearian lyrics.

John Ireland (born 1879)—*Sea Fever*; *Songs of a Wayfarer.*

Frank Bridge (born 1879)—*Love went a-riding*; *O that it were so*; *E'en as a lovely flower.*

Armstrong Gibbs (born 1889)—*Silver, Five Eyes.*

GRAMOPHONE RECORDS

TITLE	COMPOSER	RECORD NUMBER
AWAKE, SWEET LOVE	*Dowland*	Columbia 5715
WHEN I AM LAID IN EARTH	*Purcell*	H.M.V. D1567
NYMPHS AND SHEPHERDS	*Purcell*	H.M.V. E413
THE TROUT	*Schubert*	H.M.V. DB837
MARGARET AT THE SPINNING WHEEL	*Schubert*	H.M.V. DB836
THE ERL KING	*Schubert*	Columbia 9088
THE TWO GRENADIERS (in German)	*Schumann*	H.M.V. D2112
CRADLE SONG	*Brahms*	H.M.V. B4009
FATHER O'FLYNN	*Stanford*	Columbia 5356
BOLD UNBIDDABLE CHILD	*Stanford*	H.M.V. B3732
THE OLD SUPERB	*Stanford*	H.M.V. B4483
HOMEWARD BOUND	*Stanford*	H.M.V. C2580
THE SWEEPERS	*Elgar*	H.M.V. B4072
ONAWAY, AWAKE, BELOVED	*Cowen*	Columbia DB857
LINDEN LEA	*Vaughan Williams*	H.M.V. B2396
BRIGHT IS THE RING OF WORDS	*Vaughan Williams*	H.M.V. B2671
BLOW, BLOW THOU WINTER WIND	*Quilter*	H.M.V. B4379
NOW SLEEPS THE CRIMSON PETAL	*Quilter*	Columbia DB179
LOVE WENT A-RIDING	*Frank Bridge*	Columbia L1325

It is suggested that whenever possible, instead of the playing of a record a personal performance should be given. Many of the best songs by the composers mentioned in this article have not been recorded.

MUSIC IN ENGLAND

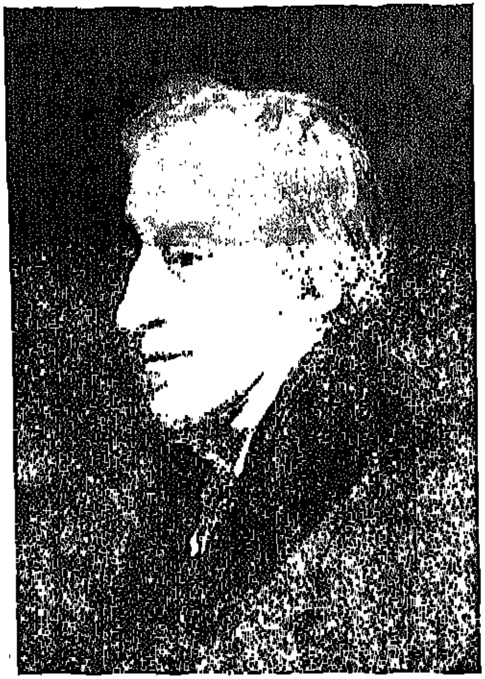
MUSIC in this country has had a chequered history. There have been times, usually when the country was politically prosperous, when the music written by English composers was of a quality second to none in the world. Such a period occurred at the end of Tudor times: there had been the disastrous Wars of the Roses; the religious upheavals under Henry VIII and Mary when men's minds were preoccupied; then had come the Renaissance; the more peaceful reign of Elizabeth, the exploration of the New World by Raleigh and others, vast expansion of trade bringing relief and contentment to the people and finally the destruction of the Armada in 1588 by which the country was delivered from a foreign menace that had been threatening for many years. As if in celebration of all this, a large quantity of fine music in the form of madrigals and motets was poured out from the pens of Byrd, Gibbons, Dowland, Weelkes, Wilkye and others, whose only rival was Palestrina. This period is often called the "Golden Age." Following the death of Handel in 1759, a decline set in. It was only to be expected that after the career of a composer of this calibre, who in company with J. S. Bach marks the culmination of the style of free counterpoint, there should be a period when music of only a lesser significance was being produced. That does not mean that English music was defunct; much good music, on a smaller scale, appeared under the names of Arne, Boyce, Crotch, Attwood, Walmsley, and the Wesleys. One of the worst periods for music in this country was during the first half of the nineteenth century. The repercussion of the French Revolution disturbed the country, Napoleon was strutting across Europe, there was dire distress following the long, weary Napoleonic Wars, all of which conditions were not favourable to the creation of great works of art. Not only were there no English composers to vie with Schumann, Chopin and Mendelssohn, but the majority of great performers were foreigners. The revival from this stagnation began with Parry, Elgar and Stanford; they were the pioneers of the great British school of composers whose work at the present time is equal in quality and importance to anything being produced in the whole world. The music of British composers is now played in foreign countries, a thing almost unique in the history of music, and British performers are acclaimed in many capitals of the world: will not posterity name this the "Second Golden Period" of English Music?

Now to consider these periods in a little more detail. From the dim past comes the vast store of folklore. There are folk songs from England, Scotland, Ireland and Wales each with their own special characteristics, and even folk songs from various districts in these countries display individuality. This wealth of folk music gives an insight into the life of past ages; many of the songs are perfect works of art—good melody, fascinating rhythm and symmetry of form—they have been the models upon which all the great forms of music have been based, and in later years they have had a profound influence upon British composers, whose works consequently display qualities that are essentially British.

From the thirteenth century there is preserved that remarkable composition *Sumer is i-cumen in*, showing an astounding facility of writing for so early a period. A characteristic church musician of the middle ages was John Dunstable (died 1453) composer and theorist. One of the most important contributions made to music by British composers is in the realm of church music. The liturgy of the English Church provides ample opportunity for the performance of suitable music in the form of anthems and settings of various parts of the service. This form of music has been fostered by the cathedrals with their daily services, and latterly also by the larger parish churches. Those responsible for the music in these places have frequently been men of ability, who by the maintenance of good choirs, and the composition of much choral music and music for the organ as well as by their own skilful performance, have built up a tradition which is unique, and of which this country may be justly proud. In the early Tudor period there were a number of such musicians who were laying the foundation of this treasure, Tye, Merbeck, Tallis and Henry VIII himself.

During the last few years there has been a revival of interest in the music of the sixteenth century. Many treatises on the subect have been written, much of the music has been reprinted and is now sung with commendable regularity by cathedral and church choirs and by musical societies all over the country. Composers of the Elizabethan period were not only writers of some of the finest madrigals in existence, but early turned to the development of writing for instruments. The fact that it was a necessary acquisition for any gentleman of the period who wished to consider himself educated, to be able to play or sing, encouraged the cultivation of music. The playing of the viol and lute was a common practice, and Queen Elizabeth was an accomplished performer upon the virginal, a keyboard instrument which was superseded by the harpsichord and later by the pianoforte.

The writing of grand opera has never appealed to any considerable extent to British composers. During the Stuart period, however, masques were often performed, for which incidental music was required. After the brilliance of the Elizabethan period the standard of music lapsed, but although the music of Henry Lawes, the chief composer

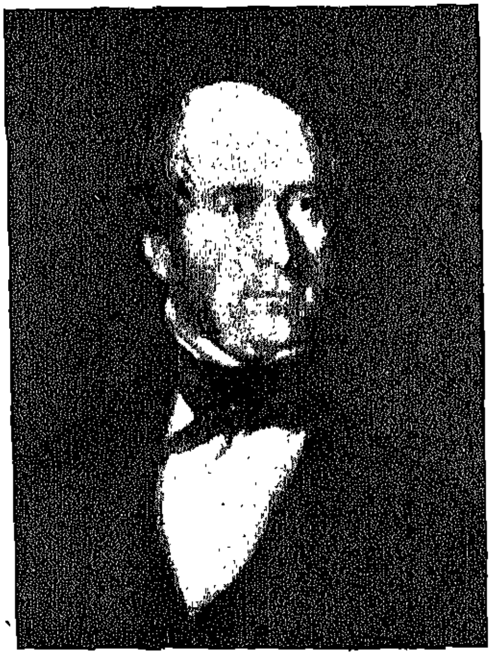


From a painting by J. Jackson, A.R.A.]
SAMUEL WESLEY

of music for masques, was dull, yet it nevertheless prepared the way for the operas of Henry Purcell (1658–1695). This genius, at the early age of 21, succeeded John Blow as organist of Westminster Abbey in 1679. In this capacity he wrote much church music, settings of the canticles and such anthems as *Rejoice in the Lord* (called the "Bell" anthem), but in addition found time to write a good deal of instrumental music for organ, violin and harpsichord as well as secular music. His operas, which contain many fine solos and chorus music, are still performed, or more often given in concert version. Among his greatest achievements in this branch of music are *The Virtuous Wife*, *Dido and Aeneas*, *The Fairy Queen*, *King Arthur* and *Indian Queen*.

As has been stated in the article on **Opera**, Purcell has been to some extent overshadowed by Handel. Handel came to England in 1710, and almost continuously from that date until 1728 he was engaged in the composition and production of operas at the Royal Academy of Music, of which he was the musical director. When in that year the operatic venture failed, he turned his hand to the writing of sacred works, and produced a long series of cantatas and oratorios revealing his greatest powers in the *Messiah*, which appeared in 1742. The famous *Beggar's Opera* was first produced in 1728, with great success. Many of the delightful tunes in the work are arrangements of popular tunes of the day. Since its first production it has enjoyed several successful revivals, even in recent times. Arne and Boyce, contemporaries of Handel, have already been mentioned in the article on **Song**.

In the period following the death of Handel, church music seems largely to have claimed the attention of composers. Samuel Wesley (1766–1837), a relative of the Church reformer, was one of the greatest organists of his time. He became an enthusiastic admirer of J. S. Bach, and was responsible



From a painting by W. N. Briggs, R.A.]
S. S. WESLEY

for the introduction of much of that composer's music into this country. His output of music was large, but he is chiefly remembered to-day by his works for the organ and his motet *In exitu Israel*. Thomas Attwood (1765–1838) studied in Italy and afterwards in Vienna under Mozart, whose favourite pupil he was. In 1796 he became organist of St. Paul's Cathedral. His works include church music, pianoforte music, glees and songs. It is interesting to note that he was one of the original members of the Philharmonic Society, still in existence, which was inaugurated in 1813, and at which some of Beethoven's works were first performed in this country. He was also one of the first professors at the Royal Academy of Music when it was opened in 1823. Samuel Sebastian Wesley (1810–1876), son of Samuel Wesley, is an important figure in the history of English Church music, both for his work as a composer and as a teacher. He held a number of important organ posts—Exeter Cathedral, Leeds Parish Church, Winchester Cathedral, and Gloucester Cathedral, where he died, and at one time he was conductor of the Three Choirs Festival. His most important works are the great *Service in E* and the anthems *The Wilderness* and *Blessed be the God and Father*.

[*Photo: Ellis and Walery*

SULLIVAN

During the nineteenth century, a number of British composers achieved success and fame by their writing for the stage.

Michael William Balfe (1808–1870) was a talented youth who completed his training as a musician in Italy where he became associated with Cherubini and Rossini, whose importance as opera composers has already been mentioned. Besides being a composer he was a violinist and a singer, and actually appeared in opera as a leading baritone. He wrote a number of operas all of which display a keen sense of melody which doubtless was enhanced by his career as a singer. The opera by which he is chiefly remembered is *The Bohemian Girl*, still to be found in the repertoire of opera companies.

The works of Sir Arthur Sullivan (1842–1900) are too familiar to need detailed description. At an early age he won the Mendelssohn Scholarship to the Royal Academy of Music and later studied in Leipzig.

His first work for the stage was *Box and Cox*, 1867. It was not until 1871 that he collaborated with William Gilbert who provided him with the libretto of the first of a series of light operas that were to become immensely popular; this was *Thespis* or *The Gods Grown Old*. In 1875 D'Oyly Carte commissioned Gilbert and Sullivan to write an opera that he was to produce: thus *Trial by Jury* appeared. Now followed with amazing regularity, *Sorcerer*, *H.M.S. Pinafore*, *Pirates of Penzance*, and the rest in which the music, as witty as the libretto, fits the words so admirably in every respect.

[*Photo: Piano Student*

EDWARD GERMAN

Some of the tunes, perhaps, considered apart from the words are not of a particularly high order—it is the perfect fitting of words and music in which Sullivan was so successful. He was censured by his contemporaries for writing theatre music when they considered his talents should be devoted to writing more orthodox music. The strange thing is that his other music, the Grand Opera *Ivanhoe* is forgotten, and his sacred music including many hymn tunes and the oratorio *The Golden Legend*, are now seen to be far inferior to his comic operas. Apart from this, British Opera has not enjoyed the greatest success in spite of a number of efforts to develop it. Some interesting works have appeared:—*Shamus O'Brien* (Stanford), *The Immortal Hour* (Boughton), *The Boatswain's Mate* (Ethel Smyth) and *Sir John in Love* and *Hugh the Drover*, both by Vaughan Williams.

One of the most popular writers of modern times was Sir Edward German (1862–1936). It was he who completed *The Emerald Isle*, which Sullivan left unfinished at his death. German wrote a number of symphonies and suites for orchestra (*Welsh Rhapsody* and *Theme and Six diversions*), but his works that have had the most widespread success are the operas *Merrie England* (1902) and *Tom Jones* (1907) and incidental music to *Henry VIII* and *Nell Gwynn*.

Present-day composers are seriously engaged in the creation of all kinds of music, much of it of a very high standard, and an outline of their achievements can be gained by reference to the articles on **Opera, Oratorio, Instrumental Music,** and **Song**.

GRAMOPHONE RECORDS

This is a supplementary list of records of English music to those given in earlier articles.

TITLE	COMPOSER	RECORD NUMBER
SING WE AND CHANT IT	*Morley*	Columbia 5716
SELLINGER'S ROUND	*Byrd*	Parlophone R1023
VARIATIONS ON "THE KING'S HUNT"	*Bull*	Columbia 5713
REJOICE IN THE LORD ALWAY (Bell Anthem)	*Purcell*	Columbia DB500
UNDER THE GREENWOOD TREE	*Arne*	H.M.V. B4199
TAKE A PAIR OF SPARKLING EYES	*Sullivan*	H.M.V. B3870
WHEN THE NIGHT WIND HOWLS	*Sullivan*	H.M.V. DB4012
THE SUN WHOSE RAYS	*Sullivan*	H.M.V. D1179
FAERY SONG	*Rutland Boughton*	H.M.V. B3905
HENRY VIII DANCES	*German*	H.M.V. B2981
ENGLISH ROSE	*German*	H.M.V. B2633

FORM IN MUSIC

THERE are various means by which people may communicate their thoughts and ideas to each other. For ordinary purposes—conversation, business transactions and the general dealings of everyday life, speech meets all requirements; the one essential thing is that the speech or language used should be understood by all concerned. It is not sufficient merely to have an extensive vocabulary of words in the particular language, but a knowledge of the construction of sentences and idiomatic expression is necessary if the detailed meaning of what has been said is to be fully understood. In other words, not only must the words of the language be known but its form also.

Some people have thoughts which they desire to express, but find speech inadequate for the purpose. They find other means of expression, literature, painting, sculpture or music. Viewed in this way, the arts assume the role of a language because they are used to express what is in a person's mind; and what a great artist can express through his work is something that cannot be expressed through any other medium: some express themselves through colour and form, and some through sounds. Just as the words in ordinary language have to be arranged in a certain order, or form, to make sense, so the sounds in music must not be haphazard, but set out according to some general plan which the listener can follow and understand. There is a certain amount of pleasure to be derived from the hearing of mere isolated sounds, or from hearing a piece of impressionistic music by Debussy: that pleasure does not necessarily mean that we fully appreciate all that Debussy was expressing, for this superficial listening is merely analogous to having a vocabulary of a language and knowing nothing about how to arrange the words into sentences which are intelligible to other people. To understand and appreciate to the full what a composer is saying in his music, it is necessary to know something of the forms in which music is written. The purpose of this article is to give the outline of some of the more common of such forms so that listening may become more conscious, active and intelligent. It must be pointed out that these forms are considerably modified at times by composers; music would lose much of its interest and composers would be handicapped if all works were turned out from a cast-iron mould, but a little knowledge of the general principles of form will be a guide to the form of most works of art.

1. Binary Form: two-part or AB form.—The essential feature of this form, the simplest of all, is the idea of statement and answer. There are two phrases or sections A and B, the one a complement to the other. Simple illustrations are *Barbara Allen*, *More of Cloyne*, *Ca' the ewes to the knowes*, *Golden Slumbers*, all from *The National Song Book*. (It should be remembered that often two or more phrases may combine to make section A or B, and that the repetition of section A or B does not alter the form.)

2. Ternary Form: three-part or ABA form.—The essential feature of this form is the idea of statement, contrast and re-statement, where the last section is a repetition, possibly modified, of the first. The sections may then be labelled, A, B and A.

Simple illustrations are *My love's an arbutus*, *New Year's Eve*, *On this day*, *The Blue Bells of Scotland*, all from *The National Song Book*. In the last example it will be noticed that the first section is repeated, and later the second and third sections are repeated. This does not alter the idea of statement, contrast and re-statement, so that it is correct to say this tune is in ternary form. More extended pieces in ternary form are:—

Songs without words (Mendelssohn) No. 5 (the first six bars are an introduction); No. 21; and No. 30 (*Spring Song*).

Sonata in D, Op. 28 (Beethoven) *Andante*. There are three main sections here, D minor, D major and D minor, and each section is itself also in ternary form.

3. Minuet and Trio Form.—This is a form consisting of three main sections, in which the second is in the nature of a contrast and the final a repetition of the first, identical or modified. It is usually in $\frac{3}{4}$ time. The Scherzo is also in this form, though it is always more rapid in speed.

The following example illustrates this form. *Sonata in F minor*, Op. 2, No. 1 (Beethoven) 3rd movement.

A. *Minuet*.—This section is itself in ternary form.

A. Bars 1—14: B. Bars 15—28: A. Bars 29—end (modified).

B. *Trio*.—This section is itself in ternary form.

A. Bars 1—10: B. Bars 11—25: A. Bars 26—end (modified).

A. *Minuet*.—An exact repetition of the first section.

The Minuet and Trio form (or Scherzo and Trio form) was a favourite movement with many composers, and numerous examples are to be found in the sonatas, symphonies and chamber music of Haydn, Mozart and Beethoven.

4. Sonata Form, or first movement form.—This is a more complex form. It is named thus because generally the first movement of a sonata or symphony is written in this particular form.

There are three main sections, usually labelled A, B, A and called Exposition, Development and Recapitulation.

A. Exposition.—There are two subjects or groups of subjects called the first and second subjects. The first subject is in the tonic key, and the second in a related key, usually the dominant. As a rule the first subject is vigorous, and the second more lyrical in character, by way of contrast.

B. Development.—The first thing to notice here is that unlike the contrasted nature of the second section in the Minuet and Trio form, this development section is based on the ideas contained in the first section, the exposition. Sometimes fresh ideas are included, but the chief function of this section is, by many technical devices, to show the tunes of the exposition from as many aspects as possible.

C. Recapitulation.—This is very similar to the Exposition. An important difference is that the second subject now appears in the tonic key. There is often a great deal of modification in this section, and often at the end there is an extension, possibly containing a little more development of earlier ideas, called a Coda.

Some scholars compare this form with that of a drama.

Act I (*Exposition*).—We are introduced to the characters, and are shown what kind of people they are (First and second subjects).

Act II (*Development*).—The characters react on each other, and the plot is developed, producing some interesting and often quite unexpected situations. (The music in the development frequently modulates to remote and unusual keys, and the subjects are worked out.)

Act III (*Recapitulation*).—This is devoted to the solving of the difficulties encountered in Act II, and the final reconciliation of the chief characters or the completion of inevitable tragedy. (The first and second subjects are now usually both in the same tonic key; they are, as it were, finally reconciled and brought together.)

This analogy must not be pressed too far, but there is a certain similarity between the two forms.

The following is an example of this form.

Sonata in C minor (Beethoven) *Allegro molto e con brio.* (The Grave movement is an Introduction, a form specially cultivated by Beethoven.)

A. Exposition.—Bars 1—123.

Bars 1—25 First subject.

Bars 25—40 Connecting or bridge passage.

Bars 41—123 Second subject. This contains several ideas, but they are all in the same key. It is the key that governs the subject rather than the melody.

Bars 124—127 Bridge passage leading to

B. Development.—Bars 128—185.

C. Recapitulation.—Bars 186—285.

Bars 186—220 First subject.

Bars 220—221 Bridge passage.

Bars 222—285 Second subject, now in tonic key.

Bars 286—end. Coda, based on ideas from the introduction and the first subject. In the later works of Beethoven, this form is more highly developed and complex, and when used by Elgar and modern composers is considerably modified.

5. Rondo Form.—There may be any number of sections in this form, with one section alternating between the others as a kind of chorus. The usual way of labelling this form is ABACA in which B and C are the contrasting sections in related keys, and A the chorus one, whose frequent repetition gives the form its name. This form is often used for the final movement of a sonata or symphony.

The following is an example of this form.

Sonata No. 7 in D (Haydn) *Finale.*

A. Bars 1—20

B. Bars 21—40

A. Bars 41—60

C. Bars 61—94

A. Bars 95—end (modified).

6. Modern Rondo Form, or Sonata Rondo Form.—This is a combination of Sonata Form and Rondo Form. It is distinguishable from Sonata form by the repetition of the first subject immediately after the appearance of the second subject.

The following is an example of this form.

Sonata in E, Op. 14 No. 1 (Beethoven). Last movement.

A. Bars 1—15 First Subject.

B. Bars 15—31 Second Subject.

A. Bars 31—47 First Subject.

C. Bars 48—84 Contrast.

A. Bars 84—92 First Subject.

B. Bars 92—109 Second Subject.

A. Bars 109—end First Subject, with modification and Coda.

7. Fugue.—This is a contrapuntal form. It may be written in 2, 3, 4 or more parts (called voices). Each voice has a melody which is woven with the melodies of the other voices to form a pattern, very much as the threads of the weaver are used to make an exquisite tapestry. There are three main parts to a fugue: A, the exposition; B, the middle section; C, the final section. The many devices used in this form are far too numerous to discuss in the present article, but the following general analysis of a Bach fugue will be a guide to the form of many others.

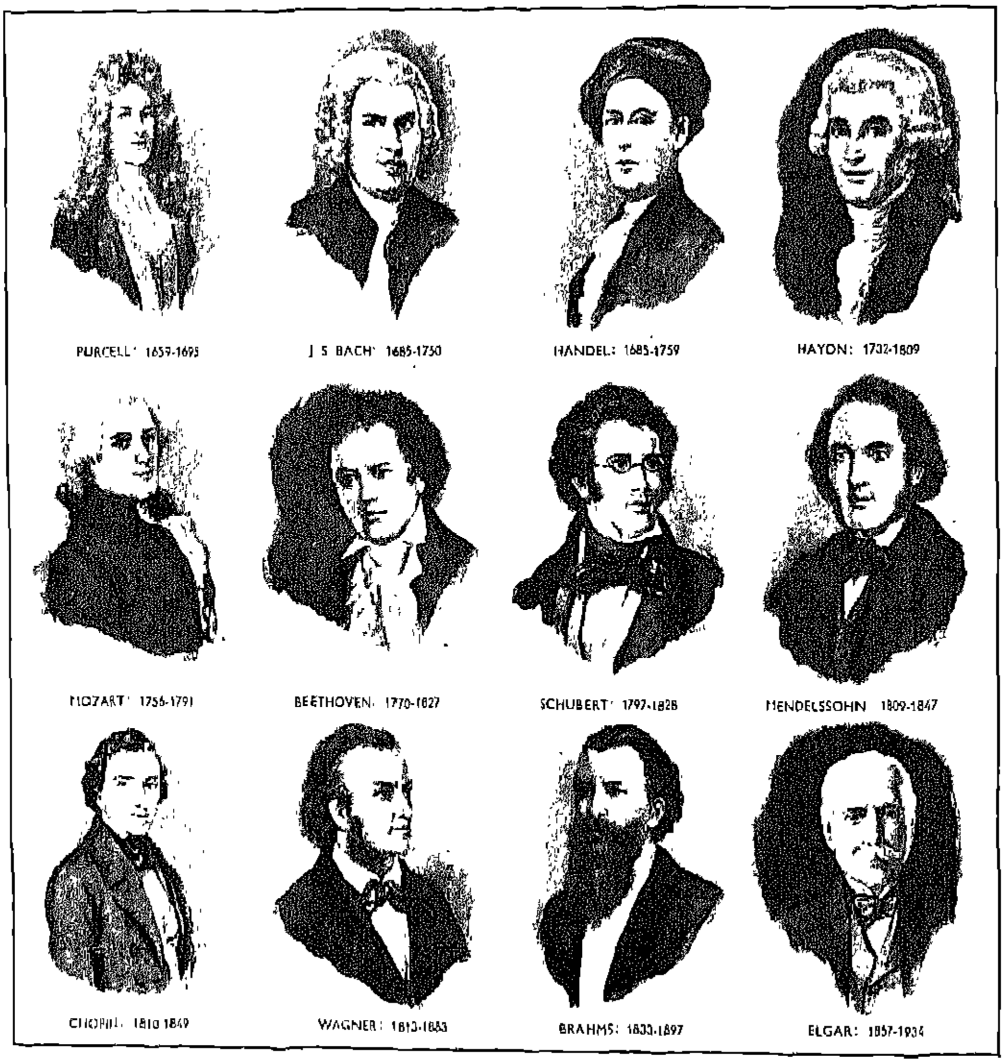
Forty Eight Preludes and Fugues for the Well Tempered Clavier (Bach), Book 1, No. 2 (Fugue in 3 voices).

A. Exposition.—Bars 1—8. One voice enters alone; when this has completed the subject, the second voice takes up this passage, which sometimes has to be modified, and is called the Answer. The first voice now has a passage called the Countersubject. Then the third voice enters with the subject and the second voice has the countersubject, while the first voice has an independent part.

B. Middle section.—Bars 9—19. Here there are various entries of the subject in different keys, interspersed with connecting passages, called Episodes, usually based on various figures already played.

C. Final section.—Bars 20—end. Here are more entries, once more centred round the tonic key.

SOME FAMOUS MUSICIANS



Class Picture No. 62 in the Portfolio

PURCELL

Henry Purcell was the chief composer of the period in English history known as the Restoration. After the execution of Charles I, England was no longer governed by a King, but by Oliver Cromwell who was called the Protector of the Commonwealth. People soon got very weary of the harsh government of Cromwell and longed for a King; therefore in 1660 Charles II, who had been living the life of an exile in France, was invited back to England to become King. It was just about that time that Henry Purcell was born; the exact date is not known, but it is thought to be 1658 or 1659. His father was a musician, who lived in Westminster, where Henry was born. The father died when Henry was six years old. An uncle took charge of the boy, and when he was old enough he managed to get him admitted as a chorister in the Chapel Royal, where he frequently sang before the King. The choirmaster was Captain Cooke, who had fought for Charles I in the days of the Civil War. When he died, he was succeeded by Pelham Humphrey, an important musician who had a great influence on young Purcell. While Charles II was in France he quite naturally learnt much about French art and French life; it is not surprising, therefore, that when he returned to England he made many changes, even in the style of music.

This is how he did it. He sent Pelham Humphrey over to France to complete his training in music under the best French composers. After several years of study Humphrey came back, became organist of the Chapel Royal and taught many things he had learnt about French music to English students, among whom was Henry Purcell.

After a time Purcell's voice broke, but he was fortunate enough to be made a copyist of music at Westminster Abbey, where he also became a pupil of John Blow, the organist. Then in 1679, when he was still a very young man, he had the honour of being appointed organist at Westminster Abbey. Besides playing the organ at the daily services and training the choir, it was his privilege and duty to play the organ on great State occasions and to compose music to celebrate important events. He played at two Coronations and at one Royal funeral service. At the Coronation of James II he received a fee of £34 12s. 0d. for superintending the erection of an organ specially for the service. When a Coronation is held in the Abbey, crowds of people desire to be present to witness the magnificent ceremony. On the occasion of the crowning of William and Mary there was a dispute over certain seats in the gallery, for which money was paid. Purcell said he had a right to receive these fees, but the Abbey authorities said that unless he gave them up, he would be removed from his post as organist. He still remained organist, so it appears that he was wise enough to hand over the money. Queen Mary died in 1694. For the funeral service which was held in the Abbey, Purcell composed some beautiful music which is still sung on similar occasions. In the following year, 1695, Purcell himself died at the early age of thirty-seven, and was buried in Westminster Abbey beneath the organ.

Henry Purcell is sometimes said to be the greatest English musician who ever lived. You may wonder, if that is true, why you have not heard a great deal about him. There are two main reasons. First, his career was extremely short. Although he wrote a great deal of music of all kinds, of a very high standard indeed, yet his life was not long enough to permit him to develop his gifts to the fullest extent. The second reason is that a few years after his death Handel came to England; and he was so successful and made such a deep impression by his music, such as the *Messiah*, that Purcell was a little overshadowed, and people have not bothered to study his music as they ought.

Purcell wrote not only many anthems and services which are still sung in cathedrals and churches, but also a great deal of music for instruments and music to accompany plays. One very important thing he did was to show how well the English language can be set to music. He set to music many of Shakespeare's lyrics in a delightful manner, and some of them are amongst the favourite songs we sing to-day. Yes, Purcell was a genius who has been unfairly slighted.

BACH AND HANDEL

The names of some composers of music are familiar to everybody, even to those who are not particularly interested in music itself. This, no doubt, is partly due to the fact that not only are these men important as musicians, but they were among the greatest men living in their own times. Such were Bach and Handel.

It is very helpful in the study of the history of music to remember the names of a few of the really great composers and to *associate them with important historical* facts so that we know to what period they belong, the kind of life they lived and how historical or political events influenced their music. Bach and Handel, whose names are so frequently coupled together, belong to the first half of the eighteenth century.

John Sebastian Bach was born at Eisenbach, in Germany, in 1685. The family was very musical; for generations there had been famous musicians in the Bach family, some singers, some players, and the young John Sebastian was given every encouragement to develop his musical gifts. His father died in 1695, and John Sebastian went to live with a married brother. Even at this early age he began to show his great gifts for music. So keen was he to study, that he asked his brother to allow him to use a certain book which he knew contained a number of works by some earlier composers, but his brother refused to let him have it. John Sebastian knew, too, that the book was kept on his brother's bookshelf behind a lattice; and so on moonlight nights he would creep downstairs, take out the book and copy from it. When his brother found out what was going on he was very angry; and not only did he still refuse John Sebastian the further use of the book, but he even destroyed the copy that he had made. This story illustrates Bach's chief method of study; he frequently copied out music by other composers, and by so doing learnt a great deal about the *art of composition, just as a painter learns* his art by copying the pictures of great masters.

Bach had to earn his living at an early age. When he was about fifteen he went to the north of Germany to the town of Lüneburg, where he joined a choir, and where he first realised that he wished to become an organist. In Hamburg, about thirty miles away, there lived one of the greatest organists of the time, named Reinken, and on several occasions Bach made the journey on foot for the purpose of hearing the great master play. Once when he was making this journey a curious thing happened. He was tired and hungry, without money, and he passed an inn where the appetising smell of cooking made him all the more miserable. And then two fish heads thrown through the window fell at his feet. This increased his misery, but on examining them he found a coin in each, sufficient to provide a dinner and to pay for his journey to Hamburg. He once visited another great organist who lived at

Lübeck, on the north coast of Germany. By this time he was already an organist himself, and had to obtain leave of absence from the church authorities. They gave him permission to be away for three months; but he was so fascinated that he stayed away much longer. When he returned, of course he had to explain his long absence; and some of the people who could not appreciate his fine playing complained that he muddled the congregation in their singing, and others said that he did not rehearse the choir in the proper way, so that altogether he was not too happy in this post in the town of Arnstadt.

His first important post was at Weimar, where he worked from 1708–1717. In passing, it is interesting to note that again in the nineteenth century the town of Weimar became important in the history of music; for it was here that the great pianist and conductor, Liszt, conducted the first public performances of some of Wagner's music dramas. During his stay in Weimar, Bach became famous as a performer upon the organ, and wrote many fine compositions for that instrument, which show how well he had learnt what Reinken and other great organists could teach him from their playing and compositions. Although these early works are in some ways similar to those of earlier composers, there is much music in them which is far greater than any other organ music that had been written up to that time.

In 1717 Bach moved to Cöthen, where he stayed until 1723. Here he had no organ, but his chief duty was to conduct the orchestra for the Duke and to write music for it to play. During this period, we find, therefore, that Bach wrote little or no organ music, but devoted his time to writing other kinds of instrumental music. The town of Halle is not very far distant from Cöthen. In 1719 Handel, who by this time had become famous, was visiting there and Bach went over in order to meet him. On his arrival he was disappointed to learn that Handel had already returned to England.

The most important period in Bach's life was between 1723 and 1750 the year of his death, when he was living and working in Leipzig. He occupied the post of Cantor, or director of music, at St. Thomas' Church, where even to the present day his music is frequently performed. His duties were to play the organ, train the choir, compose music for the many services that were held in the church and teach Latin to the choir-boys, a thing he did not very much enjoy. During the twenty-seven years he was in Leipzig he must have worked exceedingly hard, because in addition to his performances and services at the church he was engaged in teaching many pupils who were anxious to study with so fine a musician. He composed some of the best works in the whole realm of music—many cantatas, the *Passion* music, the *B Minor Mass* and many pieces for the organ. On two occasions while Bach was in Leipzig, Handel again visited Halle; on both occasions Bach was unable to get there because of illness. So, owing to misfortune, these two, the most important composers of the early eighteenth century, never actually met, although on these several occasions they had been so close to each other.

In his lifetime Bach was famous as a performer rather than as a composer. His fame had spread to Berlin, and Frederick the Great, the Emperor, invited him to his palace at Potsdam. As soon as Frederick heard of Bach's arrival he sent a messenger to his lodging to bring him along to the palace; and the Emperor was so anxious to meet this musician of whom he had heard so much that Bach had to go straight away in his travelling clothes to play to him. The pianoforte had just been invented, and Bach was invited to play upon several which the Emperor had in his possession. Frederick himself was a musician and he gave Bach a theme upon which he had to extemporise a fugue without any previous thought, just as sometimes people are suddenly called upon to make speeches without having the opportunity of sitting down to think what they are going to say. Frederick was delighted with Bach's amazing skill. When Bach arrived back in Leipzig he worked out a piece on this same theme in more detail and sent it to Frederick; in addition he sent a piece of music for the flute, an instrument which Frederick himself played, as a token of admiration and respect.

Bach was twice married, for his first wife died early in life, in 1720. His second wife Anna Magdalena, outlived him. She was a great help to him in his work, for she patiently copied out much of his manuscript, and was a great comfort to him when he was worried and had to face opposition and difficulty. They had a large family, and several of the children became important musicians.

Towards the end of his life, Bach suffered the terrible affliction of blindness. No doubt the trouble began when he was very young and used to copy music by moonlight; but in any case the constant strain of writing music is bound to affect any but the strongest eyes, and we should do well sometimes to think what it must have cost a composer to write a fine piece of music which we are privileged to enjoy. He died in 1750, but it was not until nearly one hundred years later that people began to appreciate his work. Now his music is frequently performed, and he is considered to be one of the greatest composers of all time.

George Frederick Handel was born in 1685 at Halle, in the part of Germany then known as Lower Saxony. His father was a barber surgeon, who was such a keen business man that he would not hear of his son taking up, for a career, anything so uncertain as music. But George Frederick was very interested in music and wanted to become a musician. There is a story of the lad when he was about six years old, which tells how he found in the attic of the house in which he lived a keyboard instrument called a harpsichord, and how at night, when all the other members of the family were asleep, he used to climb up to the top of the house and there practise hard. You may wonder how he could do this without his playing being heard: no doubt the house was fairly large with the attic a good distance away from the occupied part of the house; and you must remember, too, that the tone of a harpsichord (which is often to be heard on the wireless) is not like that of the modern pianoforte, but is soft and cannot be heard at any great distance. You may have seen a picture showing how Handel was at last discovered by his parents, though we are not told whether he was punished, or whether his parents now realised that their son was in earnest and determined to study music seriously.

The father was doctor to a certain Duke, and frequently he had to make visits to Weissenfels, where the Duke lived. On some occasions George Frederick went too. Once his father would not allow him to go; but the boy ran behind the coach, and when his father looked out of the coach window and saw his son running behind, it was too late to turn back and so he was taken into the coach and they went on together. At the Duke's castle, he was allowed to play upon the chapel organ. The Duke was much impressed by the boy's ability, and persuaded the father to allow his son to learn music under the local organist, with whom he afterwards studied for three years. When this organist had taught him all he could, he suggested that Handel should go to Berlin for further study. Handel went, but could not stay long because his father died and he had to return home to Halle. He was appointed organist at a church there and also went to the University to study law, as his father always intended he should.

The call of music was very strong. In 1703 he went to Hamburg, where he became a violinist in the orchestra at the Opera House. So great was his ability that when the conductor was away, Handel took his place at the harpsichord from which he conducted the opera. This caused jealousy in one of the other players, who interfered with Handel during a performance and tried to take over the conducting himself. Later the two fought a duel, but fortunately neither was hurt. It was while he was at Hamburg that Handel produced his first opera.

Handel felt that his training was still not complete, and so he did what was a very usual thing in those days, he went to Italy. At that time Italy was the home of the best music, especially vocal and operatic music, and so any young man wishing to become a composer would naturally go there where he could study with so many great masters. Nowadays there are fine teachers in other countries, including our own, and so it is not so necessary to travel abroad in order to study; in fact, English composers such as Elgar, who of course studied the music of composers of all countries, never had to go abroad to do so. This travelling to Italy in earlier times to learn music accounts for the use of so many Italian words to describe the speed and the loudness of music. The Italian composers naturally used their own language for this purpose, and students from other countries got into the habit of using the same words, and continued to use them even when they returned home.

While in Italy he met two men who had a marked influence on his career. The first was a brother of the Elector of Hanover, and the second the Duke of Manchester who was the English Ambassador to the court of Venice. The result of these meetings was that he was engaged as Capellmeister (director of music) to the Elector of Hanover, and arrangements were made for a visit to London. Just about this time he paid a visit to Halle to attend the wedding of a sister; this was one of the occasions when he and J. S. Bach so nearly met.

Handel came to London in 1710. The visit was short, but he so much enjoyed his stay there, that he determined to come again soon. For his second visit he was granted three months leave of absence by the Elector of Hanover, but London suited him so well that he failed to return at the proper time. The famous Queen Anne died in 1714 and she was succeeded by George I, who was the first of the line of Hanoverian Kings, and none other than Handel's employer, the Elector of Hanover. For a time Handel did not enjoy the King's favour. The story goes that the quarrel was made up in this way. The King and his Court were going down the river in the State barge, and behind them was to be another barge in which a band of musicians would be playing. Through the influence of some of his friends, Handel gained permission to write the music for this band to play, which so pleased the King that Handel was restored to favour and received the promise of a handsome salary. This music, ever since, has been called the *Water Music*.

Handel wrote many operas which were produced in London, but after a time, owing to quarrels amongst his singers and the unkind things done by rivals, he became bankrupt and had to close his opera house. This was a turning point in his career, and indeed the event which caused Handel to cease writing operas, and instead to write oratorios, the works by which he is now chiefly remembered. He seems to have been attracted by many of the heroes we read about in the Old Testament. He set stories about them to music, and gave the works such names as *Esther*, *Samson* and *Israel in Egypt*. The greatest of his works, certainly the most popular, and probably the best known musical work ever written is the *Messiah*.

Towards the end of his life, Handel, like Bach, suffered from eye strain, and in spite of several operations, by 1753 he went completely blind. He died in 1759, nine years after the death of Bach, and was buried in Westminster Abbey.

It is interesting to compare and contrast these two composers.

1. They were both born in the same year, 1685.
2. They were both Germans.

3. They both suffered from blindness towards the end of their lives.

4. They both wrote a large number of oratorios, and much instrumental music.

5. Bach came from a musical family, but Handel's parents were not in favour of his becoming a musician.

6. Bach spent most of his life in a fairly small region of Germany, but Handel was a much travelled man, and later settled in England.

7. Bach wrote all kinds of music, except opera, but in early life Handel was a famous composer of operas.

8. Bach's music for instruments was of the same high standard as his choral music, but Handel showed his greatest skill in choral music.

9. Bach, during his lifetime, was famous chiefly as an organist, but Handel enjoyed great popularity as a composer.

HAYDN AND MOZART

The greatest composers at the beginning of the eighteenth century were Bach and Handel: in the next period, the middle of the eighteenth century, the most important were Haydn and Mozart. These two must be considered together because not only were they both living at the same time, but because in many ways their music was similar, and each learnt from the other. This was a time when great attention was given to the writing of instrumental music, though of course other kinds of music were written as well; both Haydn and Mozart wrote many sonatas for various instruments, symphonies for the orchestra and the type of music performed by just a few players, called Chamber Music.

Franz Joseph Haydn. The first thing to notice about Haydn is his extremely long life; he was born in a little village called Rohrau, in Austria, where his father was a wheelwright, in 1732 and died in Vienna in 1809. At the time of his birth, therefore, Bach and Handel were writing their greatest works, and at his death, Mozart had already been dead eighteen years, and Beethoven was nearly forty years old. How the style of music had changed during this long period!

Haydn's early life was extremely happy. The family was poor, but all the members of it were very fond of each other. He was well brought up, and from the earliest days his parents taught him the importance of religion, cleanliness and the value of hard work. Both parents were fond of music; the father had a good tenor voice and when the young Joseph showed signs of interest in music he was encouraged by his parents. As soon as he was old enough his father taught him simple songs, and all who heard the child sing were astonished at the beauty of his voice and the correctness of his ear. When he was not singing he often pretended to accompany his father by using two sticks and imagining he was playing the violin. At the age of six he was sent away to school where a distant relative taught him to play and sing. This teacher was very strict and frequently dealt harshly with Joseph, but later on in life Haydn himself said, "I shall be grateful to that man as long as I live for keeping me so hard at work, though I used to get more flogging than food." He seems to have missed his mother's care because it is said that he often looked dirty and untidy. On one occasion a drummer was wanted for a procession; Haydn's teacher showed him how to play the drum and forced him to take part in the procession. It was arranged that the drum should be carried before him and that Haydn should follow and play upon the instrument as the procession walked along. As Haydn was very small it was found that when an ordinary person carried the drum upon his back, it was too high for him to play, and so a hunchback was employed to carry it. What a strange sight this must have been!

Haydn made such great progress with his singing that in 1740 he was able to join the choir of the Church of St. Stephen, in Vienna. Here he had to sing at the many services, and also received instruction in other branches of music. Later on his brother Michael also joined the choir. It must have been a little hard on Joseph, now that his voice was showing signs of breaking so that he could no longer sing solos, to have to give place to his brother. Joseph's conduct was not all that could be desired, for he frequently played practical jokes, and caused the authorities a good deal of trouble. The choirmaster was tired of all these pranks, and was only waiting for an opportunity to dismiss him. Finally the chance came. All the choirboys wore wigs with little pigtails, and one day Haydn, full of mischief, went round and cut off some of these pigtails with a new pair of scissors that had been given him. The result was that although he begged to be let off, he was caned and dismissed.

Now Haydn began to learn how hard life can be. Here he was in a large city with little money and no regular work to go to. Fortunately, after a little while, he was engaged by a rich noble called Count Morzin as the conductor of his private orchestra. It was quite a common thing in those days for rich noblemen to have their own private band of musicians; both Bach and Handel at one time had been engaged by such noblemen. When this Count died a few years later, Haydn, whose reputation as a musician was becoming widely known, was engaged by another nobleman, Count Nicholas Esterhazy, for whom he worked for many years. It was his duty to rehearse the orchestra, compose music for it to play, and conduct at concerts.

All through his life Haydn was fond of practical joking as some of his compositions show. For instance, he wrote a great number of symphonies for the orchestra, many of which have special names, such as the *Surprise* and the *Farewell*. Let us see why these two particular symphonies got their names. Haydn noticed that very often during the quiet movement of a piece of music some of the audience were rude and ill-mannered enough to drop off to sleep. He decided to stop this, and so, in the slow movement of the *Surprise* symphony, the music for some time goes along quietly and peacefully, and then without any warning there is a tremendous crash. This astonished the audience, who were thus made to feel ashamed of themselves. The effect is repeated several times, so that these people could no longer misbehave themselves by going to sleep during the music. The *Farewell* symphony is unique. Haydn and the orchestra had been working hard for a long time and were in need of a holiday. They had asked the Count to grant them one, but he had refused or forgotten, and so Haydn decided to bring up the matter again in a more forcible manner. During the last movement of the *Farewell* symphony one of the players was told to get up, blow out the light on his music stand, put his music away, and go out. Later on another player had to do the same, and so on until Haydn was left by himself conducting.

Haydn's greatness was now known all over Europe, and people had tried to persuade him to come to England. He was not able to come because of his work for Count Esterhazy. In 1790 the Count died, and Haydn arranged to visit London. He crossed from Calais to Dover, which took eight hours, and then drove on to London where he was received with great enthusiasm. He conducted many concerts, and composed a number of symphonies which were written specially for London; these are still frequently played. The University of Oxford conferred upon him the degree of Doctor of Music as a mark of their respect and admiration for his music, and everywhere he went he met with friendliness and success: he was even privileged to be invited to attend the Lord Mayor's banquet. One thing that pleased him very much was the English National Anthem. He decided that when he returned to Vienna he would write one for his country. That was how the Austrian National Anthem came to be written; the tune is called *Austria* and is now often sung in this country to the hymn *Praise the Lord, ye heavens adore him.* The visit to England was so enjoyable that he came again in 1794, when he met with just as great success as before.

One of Haydn's greatest compositions is a choral work called the *Creation.* He himself considered it a very important work, for he said, "Never was I so pious as when composing the *Creation.* I knelt down every day and prayed God to strengthen me for my work." In 1808 a performance of the *Creation* was being given at the University in Haydn's honour; he had not appeared in public for a long time, but for this special occasion he was carried in his armchair to a seat of honour to hear the performance. He was so overcome with the wonder of the music that he was taken ill and had to be carried out. As he was taken out a man of about forty years of age stepped forward and kissed his hand and forehead as a mark of respect. That man was Beethoven, who had at one time been his pupil and was now himself one of the best composers in the world. This was Haydn's last appearance in public. As he lay ill, the city of Vienna was bombarded by Napoleon's army, and a shot fell not far from his house. The city was later occupied by the French, and the last visitor Haydn ever received was a French officer, who had a tenor voice and sang *In native worth*, one of the fine solos from the *Creation.* Haydn died in 1809.

Wolfgang Amadeus Mozart was born in Salzburg, in Austria, in 1756. So great a composer did Mozart become that now, every year, people from all over the world visit Salzburg, his birthplace, for a festival of his music. When he was three years old he began to show an interest in music; he would listen to his sister, not much older than himself, having music lessons from their father, and then try to pick out tunes he heard upon the harpsichord. At a very early age he began to compose, and even to-day you can hear pieces played that Mozart composed when he was only five or six years old. The two young Mozarts were such skilful players that their father decided to take them on a concert tour all over Europe. They first of all went to Munich and then on to Vienna, where Haydn lived, and where, later on, both Beethoven and Schubert also lived. Here the children played at the Emperor's court, and became great favourites with everyone who saw and heard them. Wolfgang quite fell in love with one of the little princesses, whom he said he would marry one day; that was not to be, for the princess was Marie Antoinette, who became Queen of France and was executed by the guillotine at the time of the French Revolution. This tour of Europe had to be cut short because Mozart was taken ill with scarlet fever.

A little later the family started out again, this time for Paris, which was then one of the chief centres of music in the whole of Europe. As usual, everyone was charmed with the children and amazed at their skill in playing. They then came on to London, and lodged in St. Martin's Lane. They played to the King, gave many concerts and everywhere met with great success. After a time the novelty began to wear off, and fewer people came to listen to them. The father took a room in Cornhill and advertised that members of the public could hear and test these gifted children every day from twelve till three on payment of 2*s*. 6*d*. for admission. Shortly afterwards the family began its journey back to Salzburg, going by way of Holland, France and Switzerland, where they gave many concerts and made many friends.

In 1769 Mozart and his father started for Italy. They travelled about a good deal and the young Mozart was able to learn much by attending concerts and by actually meeting the most famous Italian teachers and composers. He had a remarkable memory, as the following story will show. While in Rome, during Holy Week, Mozart went to the famous Sistine Chapel to hear a certain piece of music. After the performance he wrote down the complete piece from memory, after hearing it once only. If you want to know what a wonderful feat that was you have only to try writing down just a few notes that someone plays upon the piano; yet here was a boy who could write down a difficult and complete composition from memory, after one hearing.

Some composers need perfect quiet when they are at work, but not so Mozart. When he was in Milan and writing some important work, he was surrounded by musicians—there was a violinist in the room overhead, an oboe player below and a pianoforte teacher next door: and yet Mozart said it was "delightful for composing, because it gave him ideas." A composer who came to Mozart about this time said, "This boy will cause us all to be forgotten"—a prophecy that certainly became true.

When he was twenty-one, Mozart made another journey to Paris. He felt that he was now grown up, and that it was time to treat composition more seriously, so he set out for the great city where he had been so welcome when he was a small boy. He was bitterly disappointed; no one in Paris seemed to want anything to do with him, which rather suggests that what really interested people in his young days was not so much the music he played as the fact that it was such an unusual thing for a child to play so well. He left Paris a poor and unhappy man.

For some time Mozart was in the employ of an Archbishop who was extremely unkind to him. He was forced to live with the servants and was frequently rudely treated and insulted by his employer. At last Mozart, unable to put up with this treatment any longer, asked to be released from his employment, but the Archbishop refused, calling him "low fellow and villain." Then he asked one of the high officials to obtain the Archbishop's permission for him to leave; this man was as brutal as the Archbishop and was not only rude in what he said, but actually kicked Mozart out of the room.

He married the daughter of a friend who had been extremely kind to him: but this displeased his father because Mozart had no fixed appointment which would enable him to keep a home going. Also, the wife was not a woman who was able to spend wisely what small means they had, and so for the remainder of his life Mozart was in constant difficulties over money matters. He frequently applied for posts, but for one reason and another he was unable to secure any of them.

The tremendous strain of much composition and the worry of his private life at last began to tell on him, and he was taken ill. While in bed he was at work on a composition called a *Requiem*; he felt that this was his last composition, and that he was actually writing a requiem for himself. When he knew that the end was at hand, he called his pupil and friend Sussmayer, and gave him instructions about the completion of the work, and shortly afterwards died. The funeral service was held in the open air, as was the custom in the case of poor people; a few of his friends attended and followed the procession to the city gates. A violent storm was raging, so even they turned back, and the body was laid in a common pauper's grave, in 1791, unattended.

What a hard life Mozart had! He had known success and popularity in boyhood days, but as time went on he became more and more lonely, suffered great hardship at the hand of the Archbishop, his employer, and endured much discomfort owing to his extreme poverty. Just before he died, however, things began to look a little better, for several bodies of people promised him a good salary if he would compose music for them; but alas, this offer, which would have been so welcome years before, came too late. When you hear the beautiful music Mozart wrote, do sometimes think of the suffering he had to face during a great part of his life. There are some people who say that if he had not had to endure all this hardship, probably he would never have written much of his best work. Remember, a fine work of art is only produced at a great cost to the creator, be he musician, painter or writer.

BEETHOVEN

It is easy to remember the period of Beethoven for he lived at the same time as Napoleon Bonaparte. In some ways these two great men were alike. They were both strong and determined in character, they both made a lasting impression upon the world, and they were both revolutionaries. Napoleon was the leader of the new republic of France which came into being after the French Revolution, and Beethoven's ideas about music were very different from those of earlier composers.

Ludwig van Beethoven was born at Bonn, a town on the river Rhine, in 1770. The house may still be seen, and in it there are many things connected with his life and work which are most interesting. Both Beethoven's father and grandfather were singers in the chapel of the Elector of Cologne, so that quite early in life he was in contact with music. He began to learn to play the pianoforte in his fourth year: you might expect that he enjoyed this; but as a matter of fact it meant getting up out of bed in the middle of the night and being forced to practise, so it is not surprising to learn that at times tears were shed. The gifted boy made rapid progress and at quite an early age become assistant music director in the Chapel of the Elector. Unfortunately he got no pay for this, but he was able to learn a great deal about music and to gain experience in playing and conducting. When the Elector was away, which was quite often, there was no work to do, and so Beethoven was able to spend a great deal of time at composition. In 1787 a most important thing happened; Beethoven, still a youth, made his first visit to Vienna, which was one of the important musical centres of the time where both Haydn and Mozart were living. Indeed, he met Mozart and had a few lessons from him. The story is told of how Mozart gave Beethoven a short theme upon which he had to work out a piece at the pianoforte. Mozart was so impressed by what he heard that he went into the next room and said to some friends there, "Pay attention to him; he will make a noise in the world some day or other." After about three months in Vienna Beethoven returned to Bonn, where he found the family in a bad way owing to the drunken habits of his father; in fact, the young Beethoven was now compelled to earn money to enable the family to live.

In 1792 Haydn passed through Bonn on his way to London. A meeting between the two musicians was arranged, and finally it was settled that when Haydn returned from London, Beethoven should go to Vienna to study with him there. These lessons took place, but were not very successful; Haydn was a quiet and gentle man, and failed to get on at all well with this fiery headstrong youth who did not see why he should have to work at dull exercises instead of writing music in the way he himself wanted. The lessons did not continue long, and when Haydn and Beethoven met in the street afterwards they scarcely spoke to each other. However, Beethoven certainly appreciated the greatness of Haydn, for when he began writing music seriously, he dedicated some of his first pieces to his master.

There are many amusing stories told about Beethoven which give an idea of his character. He was a short stout man, with a big head and a high forehead and a mass of thick black hair that in later years turned white, giving a striking effect against his red face. He was not handsome, but the strength of his features and his expressive face gave him a fine noble appearance. Some of the stories make one think that he was a very difficult and awkward man; perhaps he was, but you must remember that a genius is often so occupied in his mind that quite little things which ordinary people would overlook can upset him. People who knew Beethoven well all said that in spite of the extraordinarily queer and rude things that he often did, he was really a kind and generous man, whose one thought was for his music. He was always sincere in everything he did, and would permit no one to take advantage of him, as people sometimes tried to. On one occasion he was playing a duet with another musician, and at the other end of the room a young nobleman would keep talking to a lady. At last Beethoven could stand it no longer, so he got up from the pianoforte and shouted "I play no longer for such hogs," and refused to play another note. Rough behaviour, perhaps, but such people had to be taught that it is ill-mannered to talk while music is being performed. At one time Beethoven was being allowed to live in the house of a prince, who admired him and had become friendly with him. The prince knew how sensitive Beethoven was, so he ordered that if both he and Beethoven rang for the servant at the same time, the servant should always attend to Beethoven first. When Beethoven at last discovered this arrangement he was so annoyed that he engaged his own servant who should answer his bell.

He was not always careful in what he said about people. Very often he passed uncomplimentary but probably quite true remarks about other musicians in Vienna and so was not on friendly terms with them. Many people realised what a genius he was, and were prepared to ignore most of his rude behaviour and unpleasant habits for the sake of knowing him and hearing his music.

Like many another great man, Beethoven was very absent-minded over things not directly connected with his work. He could never be made to understand why a crowd should collect outside his house when he was standing at the open window dressed in his nightshirt; he merely asked what everybody was laughing at. On another occasion he shaved himself at the open window, and when a crowd gathered to watch this strange happening he took new lodgings rather than change his practice. Sometimes he was so occupied with his compositions that he forgot his meals, and he also forgot he was the owner of a horse until he received a bill for its food. These stories show how careless Beethoven was over the ordinary things of life, but when it came to his work, he was the most methodical, hard-working and thorough of all composers. He never went anywhere without a notebook, where he would jot down any ideas that occurred to him. These notebooks, many of which have been preserved, show very clearly how Beethoven worked, which was briefly this. He would jot down an idea for a theme, and alter it note by note until it satisfied him, and then after a long period, during which the whole composition was being turned over in his mind, he would set to work to write it out in detail. One tune was written in his notebooks in eighteen different versions before he got what he wanted, but once he had made up his mind on this and every other tune, nothing would make him alter it. A 'cello player once complained to him that a certain passage was difficult because, as he said, it did not lie under the hand. Beethoven's reply was simply, "It must lie." He refused to change a single note of the passage.

Beethoven had two very great sorrows in life. He adopted a nephew, and tried to bring him up well, educate him and start him in life. Unfortunately the nephew did not appreciate what was done for him, but led a careless life and was a constant source of worry to his uncle who was very fond of him. The other sorrow was much more serious, and was the most bitter that any musician could possibly have to face. About 1798, when Beethoven was still a young man, he began to have difficulty with his hearing. Wealthy friends paid for him to go to the best doctors, but his hearing became steadily worse, and finally he could not hear at all. He was completely deaf. One tragic sight to be seen in Beethoven's house at Bonn is the set of ear trumpets which he used at different stages of his terrible affliction. Gradually it became impossible to play and conduct at concerts, and at the first performance of one of his finest works, a note of which he had never heard, he had to be turned round on the platform in order to *see* the wonderful applause.

When he began writing his third symphony he decided to dedicate it to Napoleon, whom he greatly admired because of his political views. You will remember that after some of his great conquests Napoleon declared himself Emperor of the French. This act so disgusted Beethoven that he tore off the title page of this symphony on which appeared Napoleon's name, and in his anger almost destroyed the whole work. Luckily this did not happen; the music was saved and a new title page written, dedicating it to a great hero. This symphony is called the *Eroica Symphony*, under which name it is played to-day.

Although he lived chiefly in Vienna, Beethoven was very fond of the country, and frequently visited it for short holidays. His fourth symphony, often called the *Pastoral*, seems to express in music, and very delightful music too, his impressions of the country and country life. It was hoped to persuade him to come to England. He was to conduct some concerts and bring with him two big compositions specially written for London, for which he was to be paid a large sum of money in advance. These arrangements fell through, partly on account of his health, and so he never came to England but was more and more compelled to stay at his home in Vienna. He died in 1827, deeply mourned throughout the musical world.

Beethoven to-day is respected as being among the greatest—possibly the greatest—of all the composers of music, and his compositions are widely known and loved by all who really appreciate fine music.

SCHUBERT

Franz Schubert lived at the time when the most important city for music was Vienna; in fact the period is often called the Viennese Period. Mozart had lived and worked there, Haydn and Beethoven were still in Vienna, Haydn an old man and Beethoven pouring out his finest works, and now in 1797 Schubert was born there. The house in which he was born may still be seen. Schubert spent practically all his life in Vienna, and died there in 1828 at the early age of thirty-one, only one year after Beethoven.

His father was a schoolmaster who had a keen interest in music. Franz learnt to play the piano at an early age and astonished his teacher with the rapid progress he made. The teacher would often say to friends when talking of Schubert, "When I wished to teach him anything fresh, he always knew it already. I have often listened to him with astonishment." Before he was eleven, Schubert became a choirboy, and everyone was struck by his beautiful voice and expressive singing. He was sent to the Imperial Convent, a school for educating choristers of the court chapel. Before being admitted to the school he had to undergo an entrance examination. A number of other boys were also sitting for this examination, who, when they saw Schubert in a curious grey suit, called him a miller and made other jokes at his expense. However, he sang the test pieces in such a style that he was soon able to change this grey suit for the gold laced uniform of the court choirboys. At this school there was an orchestra which he soon joined as a violinist. One day the leader, hearing someone behind him playing unusually well, turned round and saw a timid nervous boy in spectacles; this was Schubert. These two became great friends. On one occasion Schubert shyly mentioned to his friend that he had composed some music. Later on, some of Schubert's music was played by the school orchestra; and even after Schubert had left the school, his music was still played there for a long time. The school seems to have been a rather uncomfortable place, for Schubert complained that the practice rooms were dreadfully cold, and that the boys had to go without food for eight and a half hours between a poor dinner and wretched supper.

When he left the school it was necessary, of course, for him to do something to earn his living. His great desire was to compose music, but he was compelled to make a little money by teaching in his father's school, work which did not please him very much. He soon began to write songs. Some of his best songs were written when he was still quite a youth. He was keenly interested in poetry; when he read a poem he was seized by a desire to set it to music, and very often he wrote the song almost without having to give it any deep thought: the music seemed to come to him without much trouble. How different was Schubert's method of composing from Beethoven's: Schubert wrote immediately what came into his mind, whereas Beethoven wrote only after very serious and deep thought, as may be seen from the way in which he worked at his themes in his notebooks. If Schubert had been a little more critical of his own works he would probably have been an even greater composer than he was. He had such a remarkable gift for writing songs that Schumann once said he could have set a placard to music.

Schubert was always poor. At one time he was friendly with a rich young man who admired his music, and for a time they lived together. Like Beethoven, too, he had some friends among the wealthy people who were able to help him from time to time. One evening he and a companion were walking in the country when they saw a friend, who was reading, in a tavern. The book much interested Schubert, who had never read any of Shakespeare's poetry before. As he turned over the pages he came across *Hark, hark the lark*; very excitedly he said, "Such a lovely melody has come into my head—if I had but some music paper." Some one drew a few staves on a menu and the song that is so well-known to-day was written in the garden of the tavern. As Schubert wrote music so easily it is quite probable that he did not remember some of the works he wrote. It is said that once he sent some of his new songs to a friend who was a singer. The songs were too high for the friend to sing, and so he wrote them out in a lower key. A week or two later he placed one of the songs upon the pianoforte, in front of Schubert, who began to try it over. His remark was "I say! the song's not so bad; whose is it?" In that short time he had completely forgotten all about the song he had written. He was always composing; as soon as one thing was finished he began another, and it is said that he even slept with his spectacles on so as not to waste any time.

When with his friends he was a lively and jovial companion, but in public or in the presence of strangers he was very shy and nervous. He had frequently seen Beethoven, whom he admired greatly, but had never actually met him. He wrote a piece of music, dedicated it to Beethoven, and set off with a friend to meet him. By this time Beethoven was deaf; he had to ask people to write down what they wished to say to him. Poor Schubert was too nervous to do even this and so handed over his composition instead. Beethoven was very impressed with the music but the interview was too much for Schubert who suddenly lost all his self-control and rushed from the room. As time went on Beethoven thought more and more of Schubert's music, and when he lay ill, he frequently spoke of Schubert and praised his work. So Schubert, who knew that he would be well received, once more visited Beethoven, who was now dying. At the funeral Schubert was one of the torch bearers round the coffin.

That was in the year 1827. In the following year Schubert himself was very ill. While lying in bed he began studying the music of Handel, and said, "I see now how much I have to learn." Such humility is one of the signs of a really great man; Schubert himself had written over a thousand compositions, many of them very beautiful indeed, and was recognised as a great master of music, and yet he himself realised how much more there was to know about the art.

Schubert died in 1828. It is amazing to think that during the course of such a short life he was able to write so much really beautiful music. He is sometimes spoken of as the father of modern song. This is because he has by his wonderful melodies, the accompaniments to his songs which generally illustrate some idea or thought contained in the words of the song, and by the great care he always showed in setting words to music, had an influence on nearly every song writer since his day.

MENDELSSOHN

Felix Mendelssohn Bartholdy was the son of a rich banker. Unlike many of the other great composers he had not to endure the hardship of poverty, but throughout his whole life was able to have everything that could be bought with money. He was well educated, went to the University and everywhere made pleasant friendships and enjoyed the greatest success, both socially and with his music. Some composers had to struggle hard to get their music performed, but Mendelssohn was always being asked to compose more and more music because people enjoyed his music so much. He composed freely and easily; in this respect he was not like Beethoven who had to work hard at his ideas before they expressed exactly what was in his mind, but more like Schubert who wrote down everything as it came to him. Mendelssohn is one of the few great composers who enjoyed a happy and successful life.

Mendelssohn was born in Hamburg in 1809, the year in which Haydn died. Soon afterwards the family moved to Berlin. Felix learnt to play the piano and violin at an early age and was even permitted to sing as an alto in a Choral Society. In addition to the study of music, he was kept very strictly to other lessons as well; in fact, in later life he said that as a child he always looked forward to Sundays, because he was not forced to get up at five o'clock to work.

In his twelfth year he began to compose. All his work was written in a very neat and finished style, and even to the end of his life his manuscripts were noted for their clean and tidy appearance. This contrasts very strongly with Beethoven's work; his pages were frequently covered with blots and crossings out, and were so untidy that at times it was difficult to see exactly what he intended. It was the custom of the Mendelssohn family to have concerts in their house on Sunday mornings; a small orchestra was generally present and many famous artists came to sing and play. This was a most valuable opportunity for Felix, for he was able to have his compositions performed, conducted by himself, and to learn much from the many great musicians who came to the concerts.

Mendelssohn was a great traveller. He came to England where he was extremely popular, on no less than ten occasions, and it stands to the credit of English people of that time that they were the first to recognise his greatness as a composer. This naturally made Mendelssohn feel very welcome when he visited this country, especially as in Berlin people were not always kind in their treatment of him. He once went to Scotland and was very impressed with the country. In fact, being a composer who enjoyed writing descriptive music, he tried to portray his impressions in a piece of music called the *Scotch Symphony*. After seeing some of the beauties and wonders of Edinburgh he said, "I found there the beginning of *Scotch Symphony*." Then he visited the West coast, and was much affected by the sight of the rock formation called Fingal's Cave. His impressions of this are set out in a well-known overture called the *Hebrides* or *Fingal's Cave Overture*. He travelled a great deal on the Continent—to France, Italy and Switzerland, playing the pianoforte and conducting his music at concerts in the cities and making the acquaintance of many musicians. *The Italian Symphony*, still quite often played, is a kind of musical description of one of these tours.

In Vienna he found, to his intense disgust, that the music of the great Viennese composers, Haydn, Mozart and Beethoven, was already ignored, and that the people there thought other and inferior composers much more important than they were. He was a great admirer of the music of J. S. Bach, which up to that time had never been widely performed. To make Bach's music better known he formed a small choir of selected voices and at once set to work rehearsing the *St. Matthew Passion*, with a view to giving it a public performance. There was a good deal of opposition; certain officials thought that the concert would not be a success, and others felt that the general public would not be sufficiently interested to attend the performance. However, the performance did take place; people crowded to the hall and the whole undertaking was a huge success. This made people take a new interest in the music of Bach; many of his works were published for the first time, and performances of them were given all over Europe. Had Mendelssohn done nothing else, he would have deserved praise for reviving Bach's music which had hardly been performed anywhere since the master's death in 1750, nearly eighty years earlier.

Mendelssohn himself composed a number of choral compositions which are great favourites with choral societies—*St. Paul*, *Hymn of Praise*, and *Elijah*. The last of these was written specially for a festival performance in Birmingham in 1846 at which Mendelssohn himself conducted. One of his most successful and popular works for orchestra is the music he wrote for a performance of Shakespeare's play *A Midsummer Night's Dream*. He seems to have been very attracted by the fairy part of this play by Shakespeare, which he has described in music with perfect delicacy and exactness: even the braying of the ass is there. As an organist too, Mendelssohn enjoyed a great reputation. He played recitals at a number of churches in London and also at St. Paul's Cathedral. One Sunday afternoon, he was playing some of Bach's organ music to a large congregation at St. Paul's, who were so enjoying his playing that they refused to leave the Cathedral. The vergers became so tired of waiting that they finally persuaded the organ blower to let out the wind, which he did, right in the middle of a piece. This was rather a harsh measure, but the story shows what an excellent player Mendelssohn must have been.

Mendelssohn lived a very active life. He was frequently touring all over Europe, giving concerts and recitals and was always engaged in composition. It is not surprising to learn that the strain of it all told upon his health. He was taken seriously ill, and died in 1847, mourned by music lovers all over the Continent and in England where he had been so popular, at the early age of thirty-eight.

CHOPIN

Frédéric Chopin was born at Warsaw in 1810. He was thus a Pole by birth, though he had many of the qualities of a Frenchman as a result of living for many years in different parts of France. His father was a book-keeper in a snuff factory; when the business failed he became a captain in the National Guard and, after his retirement from the Army, he was a teacher of French. You would have expected the father to have given his son a good education but he was only well taught in certain subjects, and fortunately one of these was music. Like Mozart, the young Frédéric was a good player upon the pianoforte at a very early age; in fact, when he played in public at the age of eight or nine, he was called the "second Mozart:" like Mozart, too, he became a great favourite. He was not strong and robust in body, and much hard work and study did not improve his health, which was often a great trial to him, and caused his early death at the age of thirty-nine.

Once when he was in Vienna, at the age of about nineteen, it was announced that he would play a piece of his own composition for pianoforte and orchestra at a concert. It was found at the rehearsal that the parts for the orchestra players were so badly written out that the players could not read them. The piece was not played at the concert, but instead, Chopin composed a piece at the pianoforte actually as he was playing, or as we usually say, he improvised. About this time, he set out on one of a number of concert tours, as a pianist, through various countries of Europe. He was what is sometimes called a virtuoso, that is, an extremely skilful and brilliant performer, like Paderewski of the present time, who also is a Pole. During this tour he went to Paris, where he was well received, partly because the Parisians had heard of his reputation as a musician, and also because at the time a good deal of trouble was going on in Poland and the French always sympathised with the Poles on that account. He played at many concerts in Paris, and frequently was invited to play at the houses of the nobility and wealthy people.

Chopin visited England for the first time in 1837, the year that Queen Victoria came to the throne. His chief reasons for coming were to consult a doctor about his health, and to arrange certain business matters with a firm of publishers who were to print some of his compositions. The doctor discovered the signs of a disease from which Chopin later died, so Chopin left England and went to live at various places on the Mediterranean coast, in the hope that the climate would improve his health.

In 1848 there was a revolution in France, and like many other musicians, Chopin fled to London. He gave concerts in Manchester, Glasgow and Edinburgh; but the strain was too much for him. While in Edinburgh he collapsed and became very ill; after a short time he went back to France, and died from consumption in Paris towards the end of the year 1849.

Nearly all Chopin's compositions were for the instrument he played so well and greatly loved, the pianoforte. He did occasionally write other music, but it is far from his best, and now entirely forgotten. His music for the pianoforte is among the finest that has ever been written for the instrument.

More than any other composer he seems to have understood just what sounds best upon the pianoforte, and every composer of pianoforte music since his time has learnt a great deal from his work. In fact, Chopin is often called the "Poet of the Pianoforte." As a rule he did not write long pieces with several movements, like Beethoven's sonatas, but shorter pieces which he called *Waltzes*, *Polonaises*, *Mazurkas*, *Studies*, *Nocturnes* and *Preludes*. It was said at the beginning that Chopin was partly Pole and partly French. This had an effect upon his music; being a Pole he loved the lively and passionate music of Poland, and by living so long in France he had learnt how to write music in a graceful and charming way, as many French composers did. His music thus reveals a delightful combination of these two features. Even all this time after his death, pianists often give recitals at which they play nothing but music written by Chopin, the greatest tribute that could possibly be given him for the fine music he wrote.

WAGNER

Richard Wagner was born in 1813 in the German city of Leipzig where, a hundred years before, Bach had been living and writing some of his masterpieces. When he was six months old his father died, and shortly afterwards his mother married again. This was quite an important happening for the young Richard, for the man she married was an actor and writer of plays who later on was able to teach his stepson about everything connected with the theatre. When Wagner came to write and produce his operas all this information served him in good stead. These operas, or music dramas, as they are usually called, demand many effects which are difficult to produce upon the stage; producers at first said they were impossible, but afterwards it was found that such was not the case, and indeed it has been said that not a single one of these difficult effects which Wagner asked for, had to be altered—his thorough knowledge of the stage, gained when he was a boy, was so accurate.

He was a good pupil at school and was especially clever at Greek. A book of Shakespeare's plays translated into German interested him very much and set him to work writing a great tragedy. Wagner always did things on a large scale, even in his young days; altogether forty-two men had to die in the course of the play, and some of them even had to return as ghosts. Of course the play is never performed, but it shows what a keen interest Wagner had in things connected with the theatre.

Leipzig was a centre of music. A series of concerts was given there from time to time, some of which were conducted by Mendelssohn. It was here that Wagner heard for the first time some of the great works of music, including some by Beethoven. He was very much impressed by Beethoven especially, and became a life-long admirer of him, frequently conducting his symphonies. Once, when he was trying to make himself known, he sent a score of a symphony written by himself to Mendelssohn in the hope that it might be performed at one of these Leipzig concerts. The two musicians frequently met, but Mendelssohn did not mention the score, and Wagner did not care to ask him about it, so that Wagner unfortunately failed in his object. It was not till years later, after Mendelssohn's death, that the score was discovered.

In 1833, when he was twenty years old, Wagner's real career began. He was engaged as chorus master at a small theatre, where his brother Albert, a tenor singer, was appearing and carrying out the duties of stage manager. Wagner now began to turn his attention to writing operas, but his was not to be an easy life. These early operas were failures, and after trying in vain to get them performed at various theatres in Germany, he decided to go to Paris. Here people were not at all friendly to him. Although it had been promised that his opera *Rienzi* should be performed, for one reason or another the performance did not take place. Wagner had little money and was forced to live in a small room in the suburbs of the gay city. In order to get what money he had, he was compelled to do a lot of copying of music for other composers instead of writing music of his own, which he felt would, in time, be appreciated by the public.

Then he returned to Germany, to the city of Dresden. Here people took more interest in his music, and some of his music dramas were performed. When he went to Paris, he had embarked upon a sailing ship at a port in the north of Germany, and intended to make most of the journey by sea. The voyage took three weeks, during which time he and his friends suffered much discomfort as a result of several storms. Thus Wagner came to know the sea in all its moods. He had been reading a legend about the *Flying Dutchman*, and this experience on the sea came at just the right time to inspire him to set it to music. From the first few notes of the overture to the *Flying Dutchman* you realise that the story has something to do with the sea; this overture is probably the best sea music that has ever been written.

Wagner was very interested in the folk lore and legends of Germany—stories of Valhalla and the Nordic Gods as they are called. He decided that they were excellent stories for music dramas, and so selected a few of them for that purpose.

The stories in their old form were not exactly suitable to be set to music; they had to be re-written in the form of plays with the words given to the various characters in the story, and so arranged that they could be acted upon the stage. Usually composers engage a poet to write their stories in this form (*libretto*, as such a play is called); but Wagner wrote his own libretti because he felt that a much better result could be obtained if one and the same person wrote both words and music. The names of some of these operas based on old legends are *Lohengrin*, *The Ring of the Nibelungs* (which is really four music dramas, which are so long that they are performed on four different nights) *Tristan and Isolde*, and *Parsifal*. The writing of *The Ring* as it is called for short, was spread over a period of twenty-five years. While engaged upon it, Wagner felt that it was a long time since he had produced a new music drama, and that people would be forgetting about him, so he decided to leave *The Ring* for a time and write a new work, which happened to be *Tristan and Isolde*. Here is a remarkable fact. Although Wagner suddenly broke off from one work to write another of a quite different character, there is not the slightest trace of the ideas of *The Ring* to be found in *Tristan*, and although it was several years before he was able to continue the writing of *The Ring*, nobody has been able to discover at exactly what place the break was made, because Wagner was so successful in going back to the special style he had adopted in the early part of the work.

For some years Wagner was compelled to live outside Germany as an exile. There was a revolt in Dresden; it was known that Wagner held revolutionary ideas, and so he was suspected of having taken a part in it, and was forced to flee the country. During this time he visited various parts of Europe, including London, where a part of *The Ring* was actually composed. His stay in London was not a great success; people were not at all sympathetic to his music, and his manner often caused him to be misunderstood.

Some of his work came into the hands of the King of Bavaria, who was keenly interested in music. He sent for Wagner, who was now permitted to return to Germany, and offered him a good salary so that he would be free from all money troubles and able to devote his whole time to composition. For a time he lived in Munich, where you can still see his house. Wagner now had a scheme for building a theatre, constructed according to his own plans, where his music dramas, which were so different from any other operatic works, could be performed as he really intended. This theatre was built in a little town called Bayreuth, and even to this day people from all over the world attend the Wagner festivals there which usually take place every summer. Until his death, Wagner himself conducted these festivals; then they were continued by his son, Siegfried, and other eminent conductors. After a life of so much hardship and suffering, during which he wrote much fine music which has had a great influence upon most composers since his time, he died in 1883 and was buried at Bayreuth in the garden of the house where he lived, and close to his theatre.

Many volumes have been written about Wagner's interesting life and work. He was, in every sense of the word, a great man. Many people did not like him personally at first because of his rather harsh manner; but those who knew him well spoke of him as a charming man, and a sincere friend. Many musicians did all they could to discourage him and to wreck his career; but in spite of all opposition, Wagner, convinced of the value and beauty of his music, worked hard and continuously at his compositions, and eventually won recognition and success. In this country his music is greatly appreciated. Frequently at concerts the programme consists entirely of his music, and every year performances of his music dramas are given at the Opera House in Covent Garden to crowded audiences.

BRAHMS

Some composers, such as Bach and Beethoven, were fortunate enough to be born into families whose parents were interested in music and who naturally did what they could to encourage their children to develop their gift for the art. Others, like Handel, were less fortunate; Handel's parents did everything possible to prevent him becoming a musician, for they had planned quite a different career for him.

Johannes Brahms was born into a musical family, and was encouraged in musical studies from his earliest years. The family lived in Hamburg, where Mendelssohn had been born some twenty-four years earlier, and where Johannes was born, in the year 1833. He learnt to play the pianoforte and other instruments, such as the horn, at a quite early age, though at that time, he was not encouraged to compose music. This learning of various instruments was a very important thing for him, because he discovered exactly the kind of things that they could do best, and later on, when he composed, he was able to write with an expert knowledge of what would sound well on them. It is quite obvious, if you are going to write music for the violin, that you will write in a better style for it, if you actually play the instrument.

On the whole, Brahms lived a quiet and peaceful life and did not experience any wild adventures as some composers did. When he was about twenty years old, he was invited to go on a concert tour with a violinist and to act as his accompanist. As things turned out, this was a most important event in Brahms' career. During the course of the tour he met one of the greatest violinists of the day, Joachim by name, who was much impressed with Brahms' ability.

Thus began a lifelong friendship. Joachim later on played many of Brahms' compositions in public and actually advised him on many points about writing for string instruments. Another helpful thing that Joachim did was to give Brahms a letter of introduction to Schumann. Schumann, himself an important composer, was at this time the editor of a musical magazine in which he wrote articles about music and musicians. He, like Joachim, was at once struck by Brahms' powers, and wrote most enthusiastic articles about him in the magazine, telling people that here at last was the musician for which the world was waiting.

One curious feature about the compositions of Brahms is, that they often appeared in pairs; for example, two overtures, or two symphonies. It was just as if he had become accustomed to writing in a certain form and immediately set out to write something even finer in the same form. When his first symphony came out rather late in life, in 1876, a great tribute was paid to him—it was called the *Tenth Symphony*. Beethoven had written nine symphonies, which were among the greatest works in the whole of music, and now fifty years since Beethoven's death, here was another symphony worthy to rank with them.

Some of Brahms' works for pianoforte were not at first appreciated. They were very different from earlier pianoforte music and people could not understand them; but here another of his friends was able to come to his assistance. Schumann's wife, Clara, was a world famous pianist. She fully appreciated the value of Brahms' work, and included some of his pieces in her concert programmes whenever possible, so that gradually they became more widely known and better understood. Brahms also wrote a number of choral works, among the most loved of which is the *Requiem* which is very often performed to the present day. He had a great reputation as a song writer, too, having come very much under the influence of Schubert's music. At one time, it was said that Brahms' songs were unvocal, that is, they were not well written for the voice and contained phrases which singers could not perform satisfactorily. That point of view changed; many of the songs are certainly extremely difficult, needing a good singer and a first-rate accompanist for their performance, but a striking fact is that whenever a singer gives a song recital, the programme nearly always contains one or more songs by Brahms. He wrote over two hundred songs in all.

Most of his life was spent in composition, teaching and occasional concert tours, with his leisure time devoted to outdoor activities. He was intensely fond of walking, climbing and swimming. After Schumann died in 1856, Brahms still remained friendly with Clara Schumann, who did so much to make his music known. At her funeral in 1896 Brahms was one of the chief mourners. He caught a chill which it is said made worse the disease of cancer from which he suffered, died in 1897, and was buried in the same cemetery as Beethoven and Schubert.

The one kind of music which Brahms did not write was opera: the most important writer of this kind of music during that period was Richard Wagner. The musicians of Germany were divided into two classes, those who followed Brahms and those who followed Wagner, and so bitter was the feeling, that if you belonged to one class you could not possibly have anything to do with the other; if you appreciated Brahms' music, you naturally detested Wagner's. Brahms himself had no wish to quarrel with Wagner, but the trouble was caused by his admirers. This was the reason for the difference of opinion among the two classes of musicians. Most of the composers of the nineteenth century were what is known as composers of "romantic" music; that is, they wrote descriptive music, music that portrayed ideas or events, pictorial music, as Schubert did in his songs, and Mendelssohn in his music to

A Midsummer Night's Dream. The composer who carried this method of composition to the furthest degree was Wagner, in his music dramas. Brahms, on the other hand, held the view that that sort of music was not the best, and so wrote symphonies and sonatas, such as Beethoven had done, in which the music was important for its own sake, and not for anything it attempted to describe. Musicians of last century said that you could only really appreciate one of these types of music; to-day, musicians say that you can appreciate and enjoy both kinds; in fact, very often music by both Brahms and Wagner is played in the same concert programme.

ELGAR

Edward Elgar was one of the great musical geniuses produced by this country. He was considered by scholars worthy to rank with William Byrd who lived during the Golden Age of the Elizabethan period, and Henry Purcell who belongs to the late seventeenth century. He was born in Worcester, where much of his music was first performed, in 1857. His father was an organist there and encouraged his son to develop his musical talent. When he left school it was suggested that he should go to Leipzig, where Bach and Wagner had lived and where there was an important school of music; as Elgar, at this time, did not intend devoting his whole life to music he did not go, but began work in a solicitor's office. It is sometimes said that Elgar was a self-taught musician: he certainly did not have many actual lessons in music, but studied very thoroughly and deeply the music of the masters, which, of course, is the best way of learning how to compose. Elgar did another very wise thing —he learnt to play a number of instruments, some of them extremely well. He was an excellent violinist and in addition was able to give a creditable account of himself upon the organ, pianoforte, 'cello, double bass and bassoon. By playing these various instruments he knew exactly what kind of music each could play well, and this knowledge helped him considerably when writing music for them, just as Chopin's thorough knowledge of the pianoforte enabled him to write such magnificent music for it. He played in orchestras, too: and no doubt this was one of the things which made him such a master of orchestral colour; that is to say, made him so skilful in using the instruments of the orchestra with such wonderful and varied effect.

Dr. Scholes, in his *First Book of the Great Musicians*, says that Elgar is a sort of musical descendant of Mozart—in this way—"Mozart had a friend and pupil called Michael Kelly—an Irishman. And Kelly had a pupil called Sutton (a Dover man), and Elgar's father learnt from Sutton, and Elgar naturally learnt a good deal of music from his father. Thus we may see that in a musical way, Elgar is a great-great-grandson of Mozart."

Like most artists, composers, painters, writers or sculptors, Elgar had difficulty in attracting the notice of the public to his work. When a man has made a reputation, people are eager and ready for his next new work, but in his early days, when people know little about him, they are not at all interested in what he can do. Elgar wrote quite a lot of music in his young days but it was not until 1899 that he wrote a really important work, which showed what a great composer he was. It was a work for orchestra called *Variations Upon an Original Theme*, though now it is usually known as the *Enigma Variations*, for a very interesting reason. Elgar set out, in this music, to give portraits of some of his friends. At the beginning of each of the variations there are some initials, the clue as to whose picture he is drawing in the following music—his wife, or some friends who had helped him in his career. Now this is where the enigma, or riddle comes in. Elgar himself said that with every one of these fourteen variations a well-known English tune could be played. Musicians have tried without success, to find out what it is; and now that Elgar is dead it is probable that we shall never know.

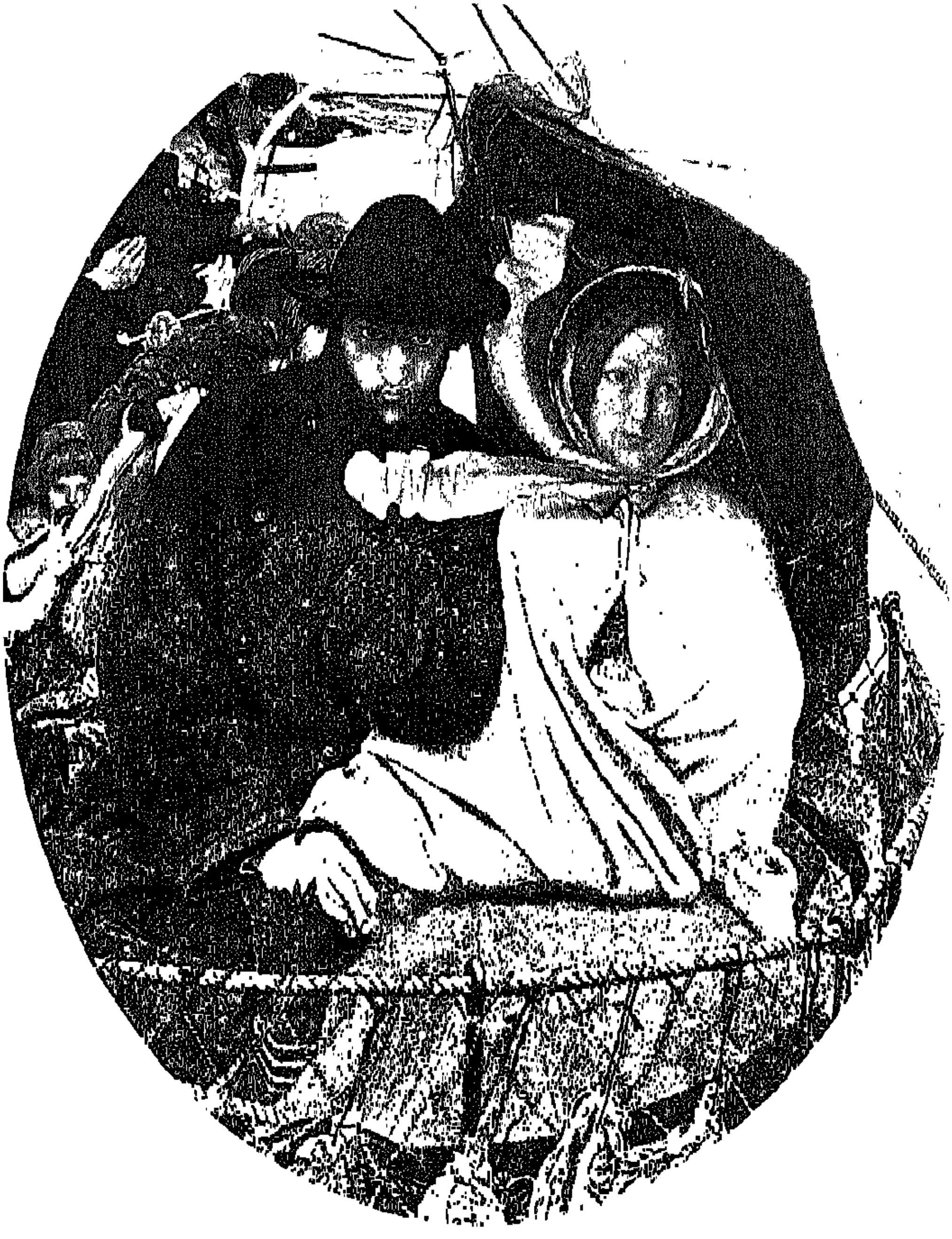
Several years afterwards, Elgar produced his great Oratorio, the *Dream of Gerontius*. At first it was not very successful, because it was so different from anything that had been heard before, that people did not understand it. In fact, it was in Germany that people first recognised what a fine work it was; soon it was performed more frequently in this country, until at the present day it is almost as popular as Handel's *Messiah* and Mendelssohn's *Elijah*. Elgar intended writing a set of three oratorios, all connected with each other, in much the same way that Wagner had written *The Ring*, which consists of four music dramas. Unfortunately he did not complete the whole work, for he wrote only two of the oratorios, *The Kingdom* and *The Apostles*, both of which are quite often performed. Many of Elgar's works were first brought out in his own native part of England, at the Three Choirs Festivals. The three choirs are those of Hereford, Gloucester and Worcester and for several hundreds of years these choirs have met annually at each of the three cities in turn to give performances of the finest music. These festivals had been of value to Elgar during the whole of his life—when he was a boy he heard many of the performances, later he played in the orchestra and when he became a composer many of his works were performed at the concerts.

Among Elgar's most popular music, though certainly not his best, are the *Pomp and Circumstance Marches*. When King Edward VII heard one of the main tunes in one of them, he said, "That tune will go round the world," a prophesy which actually came true. Later, words were added to the tune which is now generally known as *Land of Hope and Glory*, a song sung so frequently during the days of the Great War.

Elgar was the first great English composer of symphonies. A symphony is a large work for orchestra and only the greatest composers are successful in writing in this form. Writing a symphony is in some ways like painting a large picture; the canvas must be full, but not crowded, there must be proper perspective, there must be skilful blending of colour, there is an infinite number of details to be attended to. Exactly the same kind of things have to be done in writing a symphony. Elgar was a great enough composer to be successful in writing symphonies, just as Beethoven and Brahms had been. One of Elgar's most interesting works is a piece for orchestra called *Falstaff*. In it he has given a very clever study in music of that genial and interesting character.

During his lifetime, Elgar received many honours and marks of respect. He held the important office of Master of the King's Musick, and received the Order of Merit, and many decorations from universities and musical institutions in Great Britain and foreign countries. He was one of the most respected Englishmen of his day. His loss was very deeply felt when he died in 1934, shortly before the death of two other important English composers, Holst and Delius; but his music still lives and becomes more widely known and deeply appreciated as time progresses.

THE TEACHING OF GEOGRAPHY IN THE SENIOR SCHOOL



[From the painting by F. Madox Brown in the Tate Gallery.

The Last of England

Ford Madox Brown came under the influence of the Pre-Raphaelite school, and this picture, in its close attention to detail and its seriousness of thought, gives a good example of this influence. The painting shows emigrants taking their last look at their home country.

INTRODUCTION TO THE THREE YEARS' COURSE

As the chief aims and the scope of geography teaching in the senior school are fully explored in the *Handbook of Suggestions* issued by the Board of Education, it is considered that no real purpose would be achieved by quoting them as a form of introduction. Consequently, bearing in mind that those requirements must be the basis for all schemes of work with a modern outlook, an immediate entry will be made upon the projected courses of study.

Before going on to a consideration of suggested schemes, it will be necessary to consider the interdependence of the teaching in school organisation and upon other subjects. It is assumed that the course is for three years where the school is organised in "A," "B" and "C" streams. There will be nine classes.

First Year "A"	More progressive children	"B"	Normal children	"C"	Less progressive and subnormal children
Second Year "A"		"B"		"C"	
Third Year "A"		"B"		"C"	

In a school where specialisation is carried on, these groups or classes will circulate through the geography room for given periods each week, a suggested time for each stream being:

"A"—1½ hours; "B"—2 hours;
"C"—2 hours.

If such times can be allocated to the teaching of the subject it will allow at least one hour regional study in the "A" stream and half an hour's practical work, whilst in the "B" and "C" streams one hour weekly may be devoted to each branch of study.

Taking into consideration the fact that there are forty weeks in the average school year, it will be possible to allocate to each section of the scheme a certain number of periods and a lesson, say, on the study of mountain, plain and coast will probably take six one-hour periods. This will include time for copying diagrams and notes, and also time taken up by the children for individual reference.

Throughout the scheme a continuous study of the world should be made, and if special regions are to be studied, e.g., The British Isles, they should be treated in their relation to the world itself. It is suggested that teaching should at first be built upon broad outlines and salient facts with little confusion of detail, and world treatment should be regional. The first year's "A" scheme of climatic regional treatment covers cold, cool, warm, hot dry and hot wet lands, and the endeavour is to show how one type of climate and vegetation naturally passes into another, how world position and environment influence the homes and activities of man, and how these occupations in turn create the need for interchange of productions and lead to the establishment of cities and trade routes. Logical deduction of cause and effect is becoming possible with children of this age, and may be developed.

In the second year the detailed study of the British Empire is suggested and increasing detail is introduced. At this point, following on the regional study of the world, there is excellent reason for its inclusion. The land surface of the globe has an area of 51,800,000 square miles, if we exclude the Arctic and Antarctic landmasses, and of this the British Empire occupies 13,360,000 square miles. Empire study thus gives a knowledge of more than one-quarter of the land surface of the world. Again, the earth's population is approximately 1,900 millions and that of the Empire 449 millions. Here is another measure of the value of Empire study since it gives an account of the activities of more than one-fifth of the world's population. The main consideration is that the Empire includes lands with every variety of climate and production and embraces types of every one of the world's great climatic regions with all the occupations of mankind, so making possible a study of the outstanding features of each region, the homes of the people and their chief activities.

In the third year attention is divided between commercial studies, and a detailed treatment of the British Isles.

It is suggested that every opportunity be taken of adding to the Class Pictures provided in the portfolio. An abundance of authentic illustrations and photographs is of vital importance and ample opportunity might be given to the children to study pictures displayed on walls and in corridors, to mount their own private collection relating to the work in hand and to have free access to a library of good pictures and illustrations in the geography room.

The epidiascope and ciné-projector are of great educational value if obtainable, and opportunities of visiting geographical films at the local cinema should not be neglected. As a further form of illustrative material to the set lesson, the broadcast geography lectures are often excellent supplements to the work of the teacher.

SCHEMES OF WORK

FIRST YEAR

Group "A"—More progressive children.

The World and Its Regions.—Typical environments and their effects on man.

Lesson Units

I. Regions of the world in general.
II. Cold deserts and the tundra.
III. Temperate forests.
IV. Temperate grasslands.
V. Hot deserts.
VI. Hot grasslands or savannahs.
VII. Tropical monsoon lands.
VIII. Equatorial forests.
IX. Mountain, plain and coast.

Group "B"—Normal children.

Regional Study of the World as for Group "A," together with a revision of the British Isles, using the following outline syllabus:—

The Bread Lands.
The Orchard Lands.
The Pennine Moorlands.
Marketing Towns of the North.
Factory Towns.
Ports and Fishing Villages.
The Ways to Scotland.
Study of Scotland, Ireland and Wales.
Counties of the South West.
Railway Systems.

Group "C"—Subnormal children.

Peoples of the World.

Early Settlers in our Own Country.
Expansion; Need; Avarice.
Voyages of Discovery: What the early adventurers found.

This leads to a study of areas so made known to the world; human activities and conditions which govern them, leading to a modified regional study of the World:

The grasslands.
Steppes and savannahs.
Deserts, hot and cold.
The forests of the world, etc.

SECOND YEAR

Group "A."

Continued Study of the World, together with detailed studies of various aspects of the British Empire.

Lesson Units

I. The significance of the British Empire.
II. Australia.
III. New Zealand.

IV. The Union of South Africa.
V. Canada.
VI. Newfoundland and Labrador.
VII. The Indian Empire, Burma and Ceylon.
VIII. The Colonial Empire.

Group "B."

Regional Study of the World (continued):
South America.
Africa.
Australasia.
Europe.
North America.

With regard to climatic influence, and human activities.

Group "C."

Continued study of the World with special reference to our Empire overseas.

This will be made as concrete as possible, the study of areas centring round the products; e.g., Tea: Countries which send us tea. Its growth and export, etc.

Actual examples of Empire produce will be collected.

THIRD YEAR

Group "A."

1. *Economic Studies.*

Lesson Units

I. General considerations.
II. Sources of power.
III. Metallic minerals.
IV. Food supplies (1).
V. Food supplies (2).
VI. Some raw materials of the textile industries and other fibres.
VII. Timber and some associated products.
VIII. World trade and ocean trade routes.

2. *The Natural Regions of the British Isles.*

Lesson Units

I. General considerations.
II. Northern England (1).
III. Northern England (2).

IV. Northern England (3).
V. The Midland Triangle—The Bristol Avon.
VI. The South-Eastern Plains.
VII. South-West England.
VIII. Wales.
IX. Scotland.
X. Northern Ireland and Eire.

Group "B."

Further Regional Study of the World, paying particular attention to the British Empire under the following headings:

The nature of the Empire.

Historical survey. Comparisons with other Empires.

Canada and Newfoundland.
Australia.
New Zealand.
Africa: East Africa;
Union of South Africa;
The smaller islands.
India and Ceylon.
The Plantation Colonies.

Communications with the Home Country, and with other trade centres of the World.

Revision of the British Isles, as in Section 1, Year 3.

Group "C."

Studies of the Homeland.
Study of Home District.
Eastern England.
Pennine Moorlands.
The Bread Lands.
Orchard Lands.
Industries.
Towns and Ports.
Study of Scotland, Wales and Ireland.

Geography and the retarded pupil.—In the treatment of many school subjects, the work is planned primarily for the needs of the normal pupil with only certain modifications for the subnormal pupil. Yet the problem of the retarded groups in our senior schools is becoming even greater and with it the realisation that it will be very necessary to endeavour to formulate suitable methods and schemes of work which will be beneficial to these groups.

It will be useless to expect a child with a reading age of eight and a chronological age of twelve or thirteen years to amass knowledge if left to his own devices with a textbook and atlas, for his power of recognising printed words is so small that to leave him to read for content would be a waste of time. The printed names in an atlas would be unintelligible, although the maps contained therein would be of some interest because of their colour.

Again, it is well-known that the child whose intelligence quotient is low is more or less incapable of acquiring or retaining a great deal of learning. This occasions teachers many disappointments at the seeming futility of their efforts.

How then can the method be suited to the child's needs, or how can the subject be made sufficiently interesting to him in order that he will grasp facts up to the limit of his capacity? A means is suggested as the following. For example, a topic is taken from the suggested schemes for "C" forms and adapted to meet the needs of the pupils concerned.

Construction of maps.—Little or no exactitude can be expected at first in the actual drawing, much less in the understanding, of maps and plans. The explanation given must be very simple and brief, unencumbered by technical phrases. It will be enough for the child to know that a map is what the country would look like when seen from a great height. Simple *plans* should be attempted first—freehand drawings of objects viewed from above, objects of interest to boys; e.g., a penny, a matchbox, a penknife, and even imaginary sketches of wash basins, a football field, etc. Verbal instructions only should be given. Cyclostyled irregular shapes should be prepared with numbers designating the shapes themselves (the numbers depend upon the pupil's power of number concept). In some cases it may be inadvisable to use numbers above 10 but in others greater values may be employed.

Rough map shapes may be built up, compared with those found in the atlas, and improved upon; with the practice should come the recognition of shapes of the various countries and continents of the world. The sea should always be coloured blue.

In the study of relief only two terms should be used—mountains and plains. Green-coloured outline maps should be distributed and mountain ranges, coloured brown on a blackboard map, should be built up by the use of brown plasticine. It is a useful idea to have the shapes of the continents of the world cut out in plywood so that blackboard tracings may be made from them. It is easier to teach land shapes from these, for in the study of atlas maps *sea shapes* are often confused with land shapes.

If judicious and encouraging hints are given, and the exaggeration of height and crudity of workmanship are ignored, much useful work can be done in this way.

All maps constructed should be made as concrete as possible. Towns should be small, square beads being stuck to the map—small beads denoting the smaller towns and large beads denoting the larger towns. Railways may be laid down with thread dipped in adhesive paste, ports may be shown with small model ships lying at anchor.

Colouring on maps should be as bright and cheerful as possible. Hot, cool and cold lands may be painted red, pink and grey respectively, rainy districts yellow—not blue, the colour generally employed, since this avoids confusion with the sea—and dry districts white. Maps showing crops should wherever possible bear actual examples of the crops grown; e.g., cereals, model fruits, root crops and so on.

Only a very general idea of scale should be given. A large outline map of the world, which should be always in front of the class and low enough to be reached, should have a length of wood or a ruler beside it which represents a known distance, say

1,000 miles, so that it is possible for at least the brighter children to measure the width of oceans or land masses.

Above are given but a few of the numerous ideas which may bring about the partial understanding of maps. Simplicity of treatment will be the keynote of success, and if at the end of a year the pupils are able to recognise the shapes of land masses, be able to name the most important towns, mountains and rivers, the teacher's work will be amply repaid.

The geography room.—A consideration of a suitable type of room is very necessary. At the outset it should be emphasised that there is no need to be discouraged if it is impossible to secure ideal conditions and equipment, for much good work has been done and is being done under great difficulties.

Where possible the room should be large, with one or more windows facing south. While these features are desirable, they are by no means essential, as sun observations can be carried out in the playground.

There should be an independent entrance to a flat roof if the room is on the first floor, or to the playground if on the ground floor. The room should be fitted with tables and chairs, the latter having "domes of silence" or rubber studs. The tables, of the individual type, should have a surface large enough to allow the child to have an open atlas, notebook and perhaps a textbook before him. The drawers should be fitted at the ends of the tables instead of at the front. This avoids the necessity of pushing back chairs to take out books or other materials. Each table should be fitted with two unspillable ink wells, one for black and the other for red ink. If the surface of the table is left plain, i.e., uninterrupted by pen grooves, inserted ink wells, etc., it is possible for them to be moved together in the centre of the room for the assembly or preparation of large sectional maps.

The front walls of the classroom, with the exception of the space for blackboards (N) should be left clear for the display of maps, charts, models, etc., the cupboards occupying the east or north walls. The wall directly in front of the class is obviously the most important for purposes of display. It has been argued that pictures directly before the class tend to distract attention from the lesson in hand, but even so the child interested in such pictures may be learning a great deal.

A glance at the accompanying plan of a geography room will show the general arrangement of the room. A and B are classroom cupboards with a shelf depth of at least 18 in., C the library of reference books, and D a storage cabinet for folded eyeletted maps, the only type of map advocated. This cabinet may also be used as an illustrations library. E is a hardwood bench equipped with tools and a vice. Above this, fixed to the wall, is a cabinet containing test tubes, a Bunsen burner, and necessary chemicals for testing rocks, soils, etc. A gas point should be fixed below this cabinet. A sink with a draining board and hot and cold water supply should be installed. Under the sink is a cupboard fitted with shelves to hold water jars, ready-mixed colour, paint brushes, etc. (K).

A tracing table (F) which is invaluable for the quick reproduction of maps and diagrams, can be constructed in the handwork room. Four bulbs, each of 80 to 100 candlepower, are affixed to a piece of wood, 4 in. wide which extends under the table and which can be moved freely from one side to the other, (Fig. 3). Instead of the usual oak or deal table top, a sheet of plate glass at least $\frac{3}{8}$ in. thick should be placed and held in position by angle brackets. These brackets should fit loosely so as to allow for expansion of the glass. A cover (an old blind will serve this purpose) should be fastened to a roller at one end of the table; this can be drawn over the glass, so excluding light from all but the necessary portion of the map to be copied.

A little to the left of the teacher's table (G) should be hung a 20 in. suspension globe (L) showing world outline only.

Landmasses should be coloured white and ocean areas blue. There should be one other standard globe (15 in. to 18 in.) showing greater detail, as well as one 4 in. globe for each table. The latter may be purchased at a reasonable price from any large store.

A lantern screen, to be used in connection with the epidiascope or ciné-projector, should

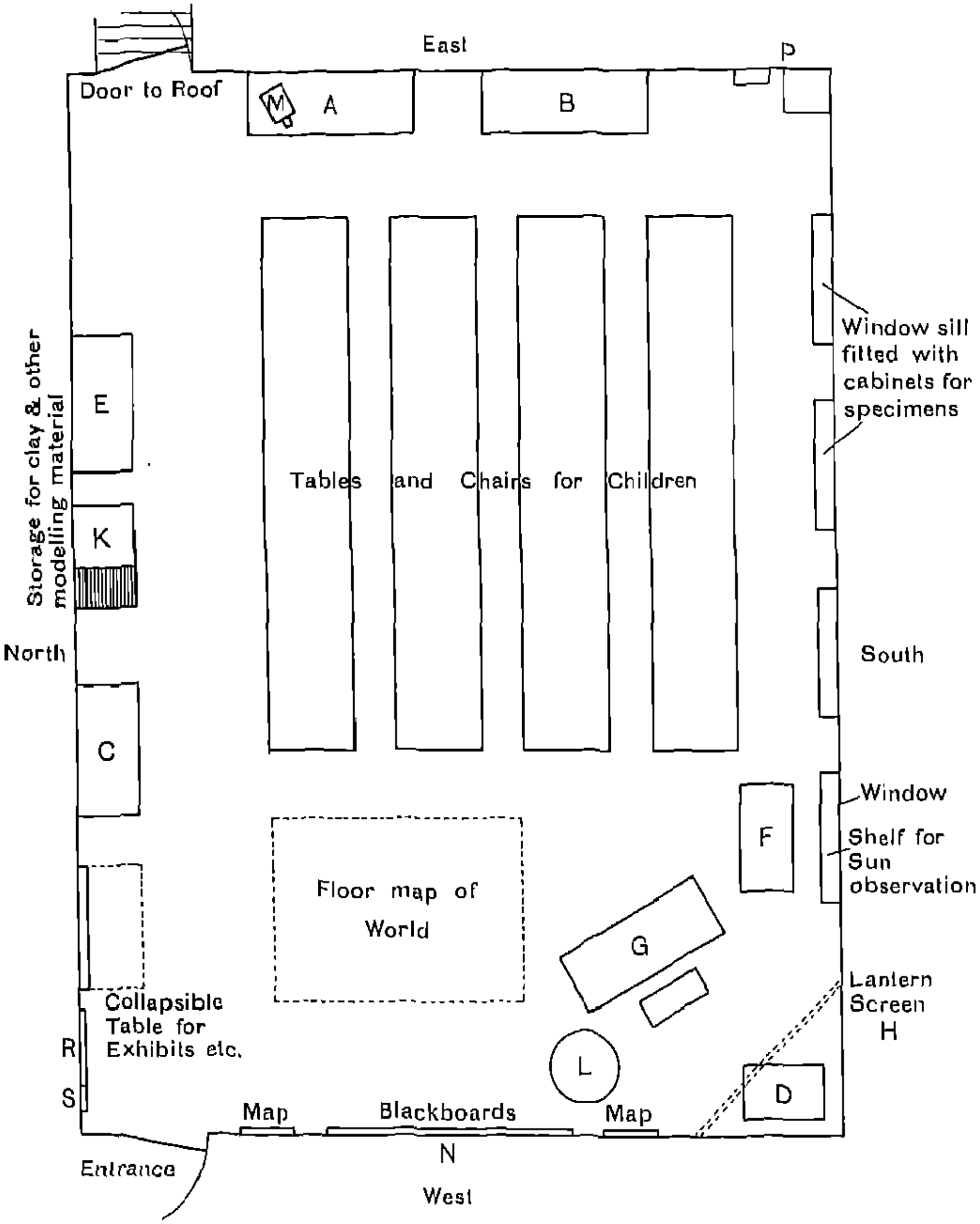

East
P
Door to Roof
M
A
B
Storage for clay & other modelling material
E
K
North
C
Tables and Chairs for Children
Window sill fitted with cabinets for specimens
South
Window
Shelf for Sun observation
F
Floor map of World
G
Lantern Screen
H
Collapsible Table for Exhibits etc.
R
S
L
D
Map
Blackboards
Map
N
Entrance
West

FIG. 1. PLAN OF THE GEOGRAPHY ROOM

be suspended across one corner of the room (H).

Each window-sill is fitted with a cabinet approximately 4 in. deep, fitted with a glass top, for geological and other specimens.

Instead of the usual type of pin rail so common in our classrooms, it may be found advisable to have the rail grooved to a depth of $\frac{1}{2}$ in. so that sheets of cardboard or plywood may be inserted. A collapsible shelf 9 in. wide should be attached to the bottom rail, Fig. 4.

This shelf will be most useful for the exhibition of models, storing the individual 4 in. globes, holding communal models, etc. If the surface is painted with blackboard renovator (preferably blue), maps and diagrams may be painted on it for reference purposes. Or again, it may be decided to attempt some form of project work with one of the streams in the school—for example, "Bridges of the World." In this case a model railway could with advantage be constructed along this shelf and the necessary bridges constructed at intervals.

In the south-east corner of the room a rack for levelling rods and a cupboard for survey-

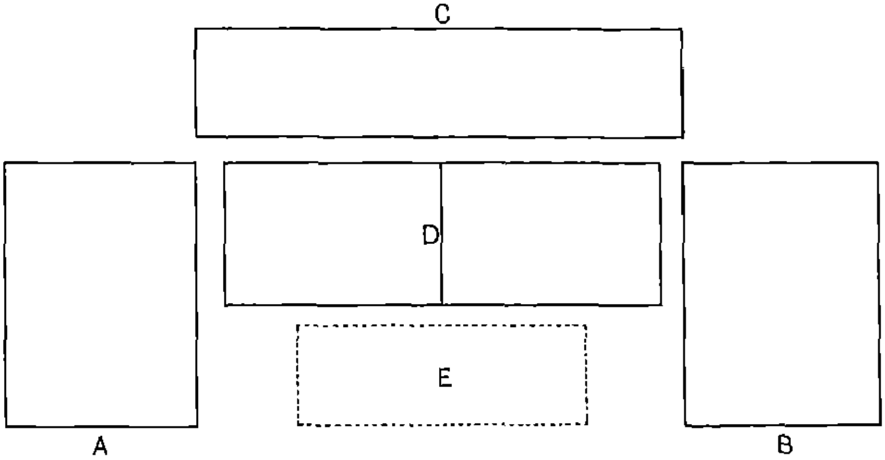


FIG. 2.—THE WEST WALL

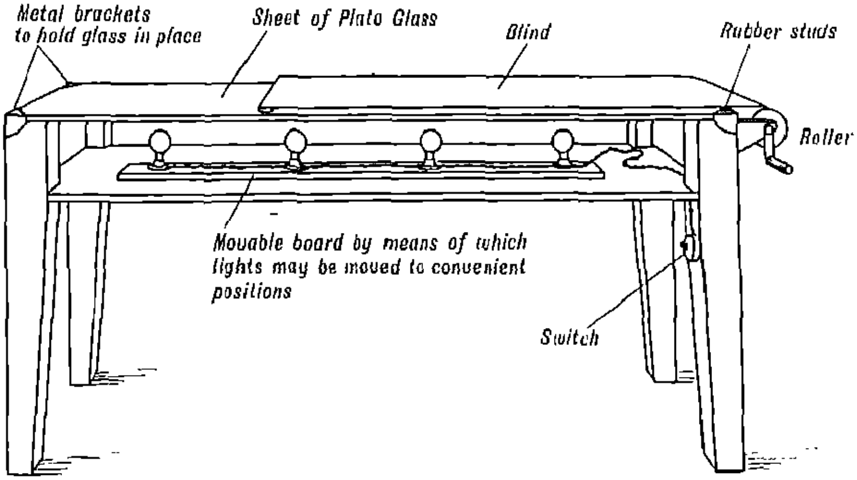

Metal brackets to hold glass in place
Sheet of Plate Glass
Blind
Rubber studs
Roller
Movable board by means of which lights may be moved to convenient positions
Switch

FIG. 3. TRACING TABLE

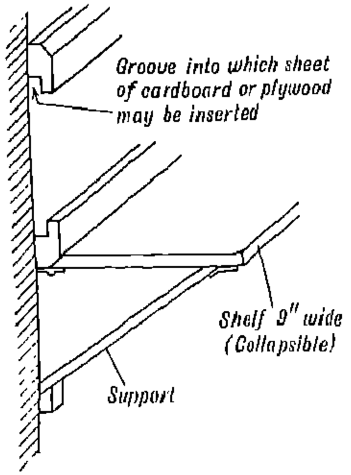

Groove into which sheet of cardboard or plywood may be inserted
Shelf 9" wide (Collapsible)
Support

FIG. 4. SHELF

ing instruments—chains, tapes, prismatic compasses, etc.—should be placed.

In the geography room everything which can be done to create the right atmosphere should be done. There ought to be an abundance of maps on exhibition at all times, although care must be taken to ensure that the material shown is related to the work in hand. Directly in front of the class there should be, for frequent reference, a large map of the world, another of the British Isles and another of the locality in which the school is situated. Suspended from the pin rail names of famous explorers painted on pieces of plywood could be hung together with a map showing the route they traversed and the lands they discovered. On the floor between the front tables and blackboard a large outline map could be painted with the south of the map nearest the class, that is, as the pupil would see it if he opened his atlas. This will be found of great value in lessons with the "C" stream forms.

With regard to the three remaining walls, one should be allocated to each year, and a plentiful supply of illustrative material pertaining to the individual schemes may be mounted there. Frequent changes of these illustrations are essential, and care should be taken that they are properly studied and discussed whenever opportunities occur in the course of lessons.

On the left of the door (R) a large sheet of plywood should be hung for recording weather observations. Usually sheets of graph paper are pinned upon the wood, but a more practical method is to have metal slots fitted by the craftwork forms so that various sheets of paper or thin cardboard may be inserted. In this way continued recordings may be made and stored on the actual recording chart. Daily observations should be made of temperature, wind and rainfall by the first-year pupils, and of sunshine by second and third-year pupils. Barometer and anemometer readings should be taken in addition to the above. Next to the board could be hung a notice board (S) for newspaper cuttings and weather forecasts from the daily papers.

School meteorological station.—The station for weather observations should be established in the school grounds, at some convenient distance from the actual buildings where there will be no influences to affect temperature readings or wind directions. If the station can be placed on a lawn or grass plot it will be an advantage; if not, the surface of a chosen patch of asphalt should be painted white.

A Stevenson's weather shield should be either purchased or made. This consists of a cupboard mounted on four legs. The cupboard gives free access to air currents through slots cut in the sides and back. Inside should be (1) the thermometer; (2) maximum and minimum thermometer; (3) barometer. The rain gauge should be placed near the weather shield.

The weather vane should be mounted on a flagstaff nearby, while the sunshine recorder may be kept in the class room. The anemometer, being an expensive instrument, should be taken out of school only when readings are to be made. If it is desirable to take readings of ground temperatures, an iron-shod thermometer should be inserted in the ground near the rain gauge.

FIRST YEAR COURSE

THE WORLD AND ITS REGIONS

LESSON UNIT I—REGIONS OF THE WORLD IN GENERAL

Introduction.—As part of the first year's course, the world and its regions are dealt with together with man's work and activities in each. A very simple division of the world will be followed since this is not the stage in which to burden the mind of the child with a detailed series of natural regions. This division is based on natural vegetation which is mainly determined by climate. A statement of the outstanding characteristics of the climate is sufficient, and the causes leading to the various types of climate will be left to a later stage.

Each of the regions selected will be treated separately and their effects on man traced, although in this connection it is as well to guard against an over-emphasis of the importance of geographical factors. Many problems are involved and the safest method of approach is to record the phenomena observed in the various regions, and then very carefully to apply this information in an attempt to show how far man is influenced by his environment. In highly organised countries, such as Britain or the U.S.A., the relations of man and his environment are far more subtle than amongst primitive peoples, and so the latter have been chosen to illustrate these relationships.

In beginning with a general survey, a large blank map of the world in coarse paper for blackboard work will be found very useful. The children might also be given cyclostyled copies, to be gradually completed in colour as the lessons proceed. If these are not available, those more adept may wish to trace maps in their notebooks; otherwise two large separated rectangles to indicate the eastern and western hemispheres, each with a line drawn to represent the equator, will be found quite suitable. It is a good plan when a whole region comes into a course of study, covering a considerable period, for each child to furnish himself (in the absence of other means) either with a permanent tracing or a cardboard template of that region. Making the latter forms a useful occupation in a general activity period.

General survey.

1. *The Frozen Deserts and the Tundra* are the ice-bound regions, with the latter forming the fringe in the north, that occupy the whole of Antarctica in the southern hemisphere and also a wide belt surrounding the north pole.

2. *The Coniferous Forest Belt* stretches through the cold lands that extend right round Eurasia and North America.

3. *The Deciduous Forest Belt* develops out of the coniferous forests in the east and west sides of the continents and in turn, towards the equator, merges into the Mediterranean region.

4. *Evergreen or Mediterranean Region.*—As the deciduous forests seem to coincide with a belt of cyclonic storms that die out in the centre of the continents, causing grass to take the place of trees, so this region is created by the movement of the storm belts towards the equator as the seasons change.

All these belts comprise the temperate forest region. It is not very widely represented in the southern hemisphere since New Zealand and comparatively small areas of South America, Australia and South Africa are the only parts lying far enough south to be included in it.

5. *Temperate Grasslands.*—These sweep towards the equator from the margins of

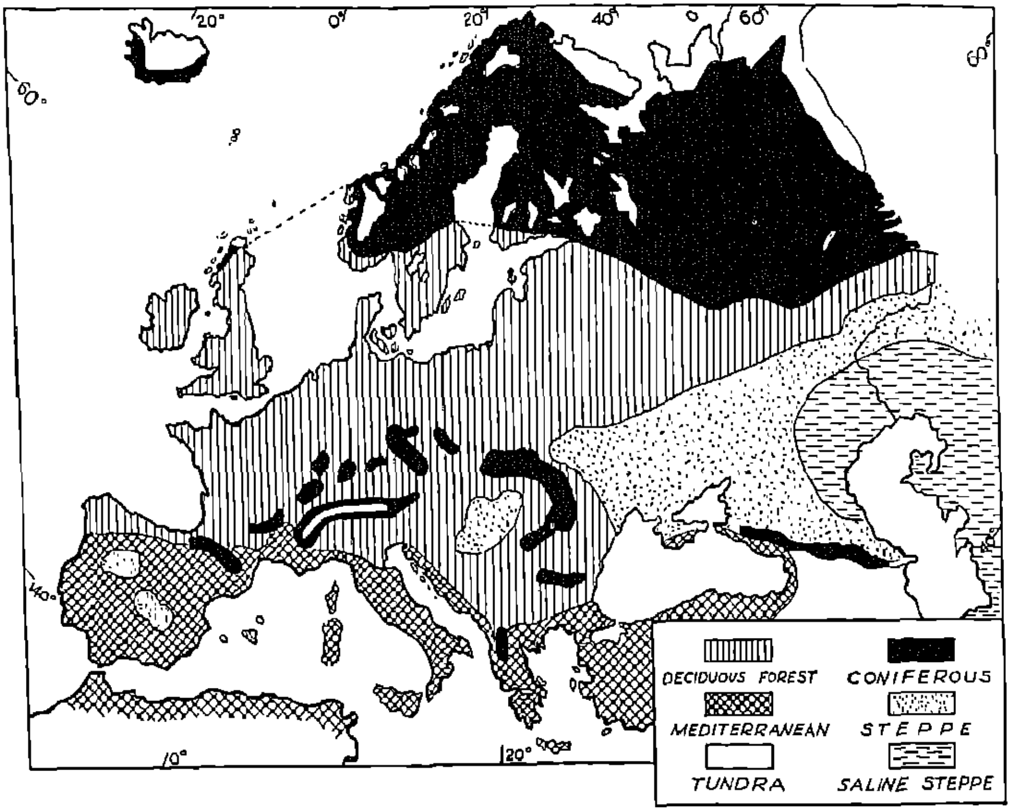


FIG. 5. VEGETATION BELTS OF EUROPE (NOTE THE DECIDUOUS "WEDGE")

the coniferous forests and meet, in the interiors of the continents, the next region which stretches eastwards from the evergreens. Special names are given to these rolling grasslands—prairies in Canada, steppes in Eurasia, pampas in South America and veldt in South Africa.

6. *Hot Deserts.*—Generally speaking, these occur between latitudes 20° to 35°, but with the exception of North Africa do not reach the east coasts of the continents owing to the prevalence of summer rains.

7. *Hot Grasslands or Savannahs.*—These areas of tall tropical grasses interspersed with clumps of trees where water occurs near the surface of the land form a transition region between the desert on the one side and the next region on the other.

8. *Equatorial Forests.*—Trees rapidly become more numerous towards the equator until finally tropical jungle completes the survey.

When a closer study of these belts of natural vegetation is undertaken it will be found that the continuity is repeatedly broken. This may occur owing to the following reasons:—

(*a*) *Soil conditions.*—Many variations are found giving rise to increased growth on the one hand and stunted vegetation on the other. Examples may be seen in the rich humus of the broad-leaved forest areas and the fertile black earth of the prairies. Poor soils, created to a great extent by the climates, are found in polar and equatorial regions.

(*b*) *Presence of minerals.*—Great areas have completely changed their original character owing to the many activities of man in extracting and making use of the deposits discovered or in utilising the country after the ores have been removed.

(*c*) *Mountains and plateaux.*—These have a marked effect on climatic regions and may completely alter the type of vegetation in particular latitudes. At the equator, for example, all regions may be found from tropical forest to ice cap.

(*d*) *Human development.*—The industry and scientific discoveries of man have made tremendous changes both in the development of new forms of plant life and in the removal of vast areas of natural vegetation to make way for the complex conditions required by civilisation.

Memory work.—1. There are two types of desert, frozen and hot. These are caused by (*a*) absence of heat; (*b*) abundant heat without moisture.

2. Great changes in vegetation are due to uneven conditions of rain and heat. Thus, *stunted growth* is caused by (*a*) little heat and moisture; e.g. lichen of the tundra and mountain tops; (*b*) great heat and little moisture; e.g. cacti of the desert fringes. *luxuriant growth* is caused by great heat and very heavy rainfall; e.g. the tropical forests.

Special types of growth are caused by (*a*) rain at one season only; e.g. evergreens; (*b*) great cold at one season; e.g., conifers.

3. Both men and animals develop special characteristics according to their surroundings: (*a*) *Cold lands*—accumulation of fat, thick furs, etc.

(*b*) *Equatorial lands*—coloured peoples, huge animals, etc.

(*c*) *Great grasslands*—tall, long-sighted people, animals dependent upon speed, etc.

Activities and exercises.—1. *Make a large map* of the world (brown paper will do very well) and illustrate the natural regions by pasting on illustrations from newspapers, old books, advertisements and wrappers. Add to them by sketches of your own invention or copied from pictures.

2. *Draw up a poster* suitable for announcing a future lecture entitled *From Pole to Equator.*

3. *Prepare a large album* for making a collection of postcards and foreign stamps. Loose leaves of brown paper will do quite well as long as you bind them securely. Do not forget to finish with a specially designed cover to show what the book contains.

4. *Make a sketch book* of convenient pocket size. During the year there will be hundreds of little scenes, people, animals and so forth arising from your work that will provide a very interesting collection at the end. Sketches in black and white take very little time and improve tremendously as you go along.

5. *Notebook.*—A well-kept geography notebook is not only very interesting to look at but can be very useful after schooldays are over. A good method is to keep one page of each pair for sketches and illustrations and cuttings, and opposite it to write the *facts worth remembering* from each section studied. (Examples of these are given in each case). From time to time short questions arise about odd things not mentioned in the lessons. These can be found out later from reference books or from friends and answered at the back of the notebook.

When a book is complete, give it a decorative cover with a definite title showing its contents.

LESSON UNIT II—COLD DESERTS AND TUNDRA

Introduction.—This particular series of lessons is really a continuation of the junior school studies of people of other lands. With a number of facts already at the children's disposal, the work can assume a more scientific nature. Terms such as glaciers, pack ice, tundra, aurora borealis are easily within their grasp and from the general notion of Eskimos and eternal ice and snow, distinctions can be made. The subject takes on a wider meaning, the term *nomads* being

Plate I. Geographical Regions—Tundra
(Class Picture No. 78 in the Portfolio.)

employed for the first time to distinguish a type of people who must wander in order to live. Life is shown to vary in all its phases according to the changes in climate. Thus there is a cause for the squat appearance of the tundra tribesman and his diet and there is a cause for the lichen and the stunted bush growth that occur in various places.

The teaching notes that follow here have been framed with a view to helping in the presentation to the children of this wider view of the subject whilst the memory work, if desired, may offer a convenient summary for notebooks.

Cold deserts.—These extend round the poles over a space of approximately 23° latitude. A great part of the area within the arctic circle is occupied by an almost land-locked ocean that is mostly frozen, whilst the antarctic circle encloses an immense ice-capped land-mass known as Antarctica. Greenland provides the only large ice sheet of the northern hemisphere, the other land areas being too low or too far from the poles for permanent ice in huge quantities, Plate I.

Land forms.—Antarctica is a solid ice cap of 3,000,000 square miles in area. The surface of the continent is a flat dome, the ice descending to the sea and stretching over it like a broad terrace some 300 ft. above sea level. Pack or drift ice occurs round the coast. Pressure ridges form where the packs are crowded together by the wind or tide; otherwise, they are separated by *leads* or lanes of open water. These are always likely to close and so any navigation is extremely dangerous. Arctic pack ice is always drifting. This was proved by Dr. Nansen during the years 1893–1895. He deliberately froze his ship, the *Fram*, into the ice north of the New Siberian Islands and then proceeded to plot his course as the ice carried him from the Bering Sea towards Greenland. Quite recently too, three Russian explorers landed on pack ice and drifted similarly for 1,000 miles at the rate of from twelve to sixteen miles a day. They carried out their experiment from May, 1937, till rescued with the ice breaking in February, 1938.

Climate.—This is marked by the terrible cold and the intense blizzards that rage for days at a time during the sunless winters. In Antarctica winds blow from land to sea and the height of the continent makes conditions still worse.

Forms of life.—Human existence is impossible, the tremendous difficulties in land forms and climate of Antarctica even preventing exploration of great areas. In the cold water fringing the icecap, whales, seals and small fish exist and penguins with a few other seabirds are seen.

Tundra.—This is the region comprising the low shores around the Arctic Ocean. Its main interest lies in the conditions created by the season of midnight sun when the snow covering melts and converts the land into an arctic prairie of many lakes and marshes that cover a permanently frozen subsoil, Fig. 6.

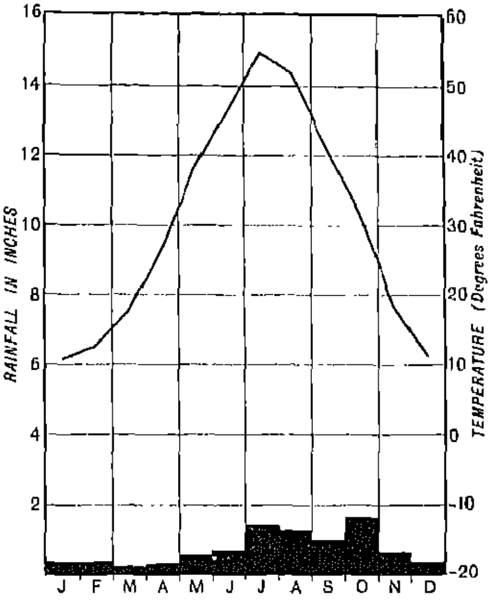


FIG. 6. TUNDRA TYPE—CONDITIONS AT KOLA

Vegetable life.—In summer shallow-rooted shrubs and plants abound. Dwarf pines, firs, larches and birches form breaks in miles of monotonous country. Mosses, lichens, grasses and hardy flowers appear amid patches of stunted crowberry and whortleberry bushes. No cultivation is possible.

Animal life.—Food provides existence for hardy animals. Reindeer or caribou (the North American name) follow the pastures in herds. Bears, wolves, foxes and hares frequent favoured areas, and duck and ptarmigan are numerous. Summer brings mosquitoes, the "curse of the tundra." Round the shores whales, walruses, seals and fish are frequent.

Man.—The existence of vegetable and animal life provides a foothold for man. Many tribes of nomadic hunting peoples exist—in North America, the Eskimos; and in Eurasia, the Lapps, Ostiaks and Samoyeds in the west and the Koviaks and Chuckchi in the east.

Characteristics.—In general the people are squat and dirty in appearance, extremely conservative but peaceful, generous and contented. Excepting where there is intercourse with traders, the dress is chiefly of skins sewn together with sinews, a large hood for a winter head covering being an essential item. Among most tribes the family is the unit of social life with the strongest man as leader, although relatives by marriage tend to live together. The struggle for existence is seen in the custom of "Kannitock" among the Siberian tribes, that is, the ceremonial voluntary death of old people.

Homes.—Summer dwellings are portable and consist of toupigs or light tents of reindeer skin, cloth or birch-bark. The well-known igloos of turf or snow are necessary for winter. Furniture is almost entirely absent owing to lack of wood. Meat, fish and oil are necessarily the main articles of food, the reindeer meat often being stewed when in a putrid condition without causing any bad effects. Strong tea is in great demand amongst certain groups, as many as forty cups a day being considered an ordinary matter.

Livelihood.—Fishing and hunting are the two means of existence. The tribes are compelled to follow the migrations of the reindeer, though some have succeeded in domesticating the animal. In this case it is used for transport, food, clothing and the sinews for all requirements of stitching and binding. Even the antlers are ground down to provide a very potent medicine. Fishing is usually done from kayaks or light canoes made of a framework of bone and wood completely covered with skin excepting for the round hole containing the occupant. Capsizing is frequent but expert fishermen roll completely over and return to an upright position. Sometimes larger boats called umiaks are employed but these need frequent greasing to keep them seaworthy and, strange though it may seem in these savage regions, the up-to-date Eskimo does not consider himself complete without his motor-boat. Although bows, arrows and the fishing spear are still in common use, the rifle and other modern weapons are becoming more and more frequent.

Modern tendencies.—Increasing contact for fish and articles of commerce is being made with the tundra tribes and serious attempts at settlement have begun in Arctic Siberia. Port Igarka, a large village on the Yenesei, a hundred miles inside the Arctic Circle, with a population in 1930 of 4,000 had in 1936 grown into an industrial town with 14,000 inhabitants. It is held by some that the Arctic may become one of the world's chief sources of meat supply and thus the inhospitable north may not remain silent for ever.

Memory work.—1. The ice in Antarctica covers mostly land and in the Arctic, water.

2. The biting cold saps the strength of man. That is one reason why exploration is so difficult.

3. The great difficulty to shipping is the movement of the ice.

4. The caribou is a reindeer but it is untamed. In its place huskies are used for transport.

5. Penguins belong to the southern hemisphere only. They are found mostly between the Cape of Good Hope and the south pole.

6. The midnight sun melts the surface of the tundra, but the soil below remains frozen.

7. Civilisation now saves many people of the tundra tribes from death by starvation when animals are very scarce during bad winters. Immediately reports of sufferers arrive, aeroplanes quickly convey enough food until supplies can be sent by sledge or the people brought into the settlements.

Activities and exercises.—1. *Questions.*—Can you find the answers to these questions? If so write them down in your notebook:

(*a*) What is whalebone? (It is nothing to do with the whale's skeleton.)

(*b*) Are Eskimos able to wash themselves?

(*c*) Why are tundra people mainly meat-eaters? Give two reasons.

(*d*) Who discovered the north pole and who the south pole?

(*e*) What is the good of exploring the regions round the poles?

(*f*) What are the Northern Lights? Can they be seen in England?

(*g*) Does a reindeer hibernate in winter? If not, how is it able to obtain its food?

2. Exploration around the poles provides a good subject for a lecturette. The reference library will furnish all necessary notes.

3. *Make a model* in papier mâché of pack ice, showing leads, with a ship wedged in the ice. It could form the centre of a complete scene entitled *The Frozen North*.

4. *Illustrations.*—Articles constantly occur in the newspapers dealing with trade and life among the tundra peoples. Cut them out and bring them to school together with any illustrations. Paste them in your notebook.

5. *Write a short story* for the school magazine telling of a journey by one of the Canadian North-West Mounted Police from Prince Rupert to the frozen lands to capture an Indian who has broken the law.

6. *Sketch* a laughable cartoon in black and white showing an accident to an Eskimo boy or girl when learning to paddle a kayak.

7. *General interest.*—Suppose you were an Arctic explorer. Make a list of the stores needed on your ship:

(*a*) Foodstuffs—they must be very light and able to be packed in a small space.

(*b*) Vehicles for ice travel.

(*c*) Clothes.

(*d*) Instruments for finding the way and making scientific observations.

(*e*) Means of providing light and heat.

8. If you were going as a nurse to a tribe of Eskimos who had been reported dying through weakness from famine, what would you need? Make lists keeping them under separate headings; e.g., food, clothes, first-aid equipment, etc.

LESSON UNIT III—TEMPERATE FORESTS

Introduction.—A complete study of this region may become protracted owing to the large area of the world involved and the variety of subjects that arise. Full notes have been given so that a detailed course may be taken if desired. For the lower stream children the sub-divisions are offered so that a simple summary may be devised readily to include the important facts only. The three divisions of forest types offer an excellent opportunity for continuing the work of the previous lesson unit in leading a child to observe, and then to look for, effects arising from definite facts. The differences are so well marked both in vegetation and in the life of man that contrasts and comparisons can be made with telling effect.

It is hoped that the questions and exercises offered will help as a guide in framing activities that will take the children beyond the classroom in their notions of geography and foster the interest that is always difficult to maintain with a so-called school subject.

South of the Arctic Circle there extends a

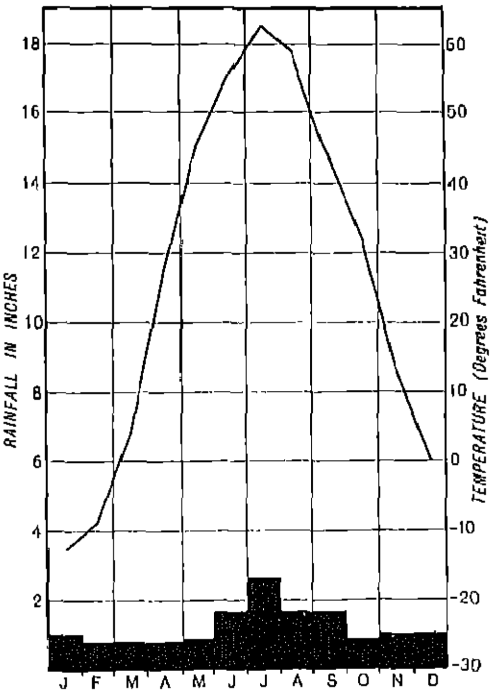


FIG. 7. CONIFEROUS FOREST TYPE—FORT CHIPEWYAN

belt of temperate forest, the width of which varies in different parts of the world. Along the coasts of landmasses it stretches almost without a break to within 30° of the equator, whilst in the interiors it merges into grassland near the 50° line of latitude, Plate II. Three definite types of forest are included in this region: (1) coniferous; (2) deciduous; (3) evergreen.

Coniferous Belt.—Leaving the tundra, the trees gradually increase in size until the forest proper is reached. Pines, firs and larches are the most common, with needle leaves to offer the least surface for evaporation and long roots to penetrate below the frozen winter surface, as their main characteristics.

Climate.—The chief conditions creating this type of vegetation are warm summers,

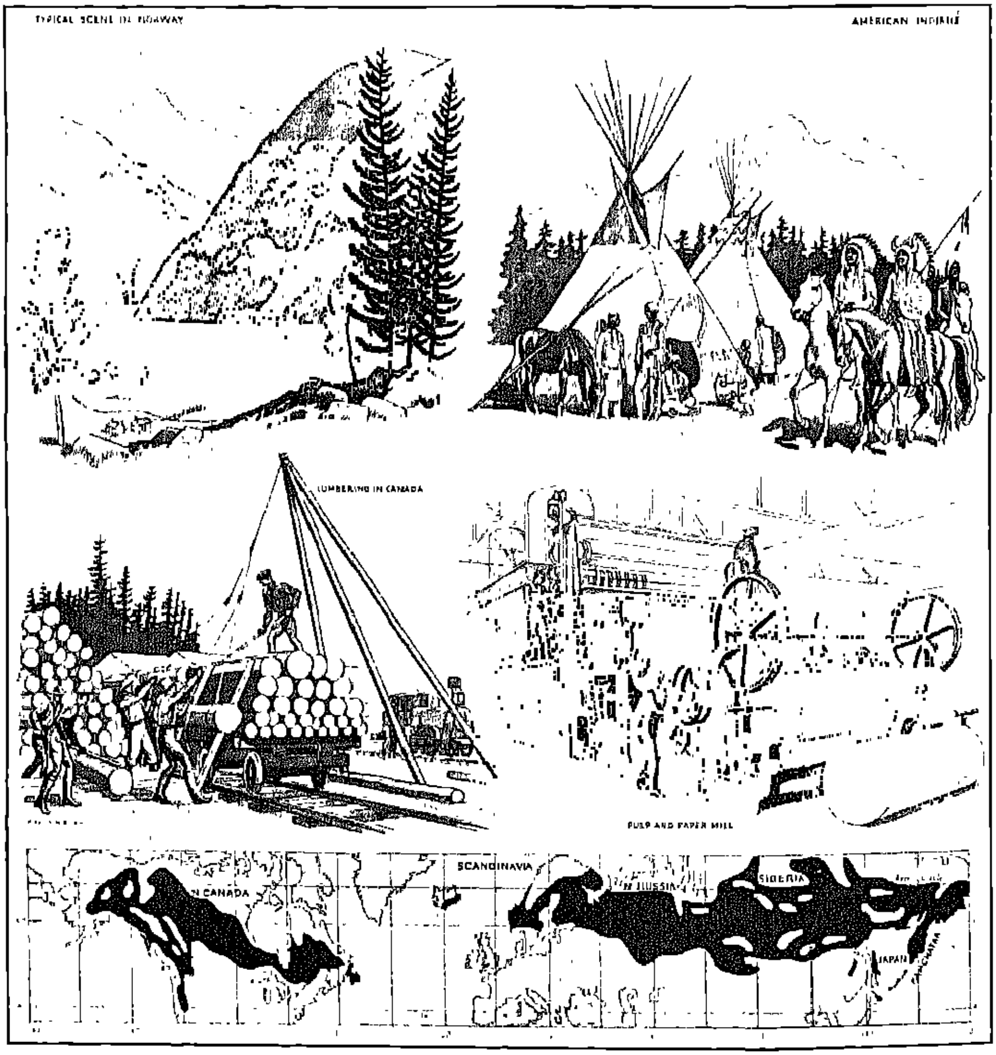


Plate II. Geographical Regions—Coniferous Forest

(Class Picture No. 79 in the Portfolio.)

approaching 70° F. in the interiors of the continents, and extremely cold winters with the thermometer often below 0° F. Although there is plenty of moisture from melted snow the actual rainfall is quite light and averages about 20 in., the bulk of which falls in early summer, Fig. 7.

Animal life.—Animals noted for their valuable fur are numerous and include the skunk, squirrel, mink, beaver, sable, ermine and musquash. In the more open areas larger, fast-moving animals are common, including deer, elk, moose and bear.

Man.—As the white man now penetrates the region freely, the tendency is for primitive peoples to be rapidly disappearing. A few tribes who have not passed the hunting stage of development still remain. Of these the best-known examples are the so-called Red Indians who exist in the more remote parts of the North American forest or in reservations. Where villages are formed, rough timber houses daubed with clay and thatched with twigs and leaves are erected. A few crops are raised in a clearing, but hunting is still favoured by the young men, Plate III. The two most important activities of the white man in the coniferous forests are trapping and lumbering.

Trapping.—The forests of Canada provide a large proportion of the world's valuable furs. There is, too, an important and increasing industry in the rearing of fur-bearing animals in captivity. There are some 5,000 fox farms and 1,400 other fur farms in Canada. The greatest fur trading company in the world is the Hudson Bay Company. The Eskimos, North American Indians and Canadian trappers collect the skins and some 4,000,000 pelts are collected annually. Fur auctions are held on a large scale at Montreal and Winnipeg. London (England)

PLATE III. INDIANS ROUND A "TEPEE" OR TENT

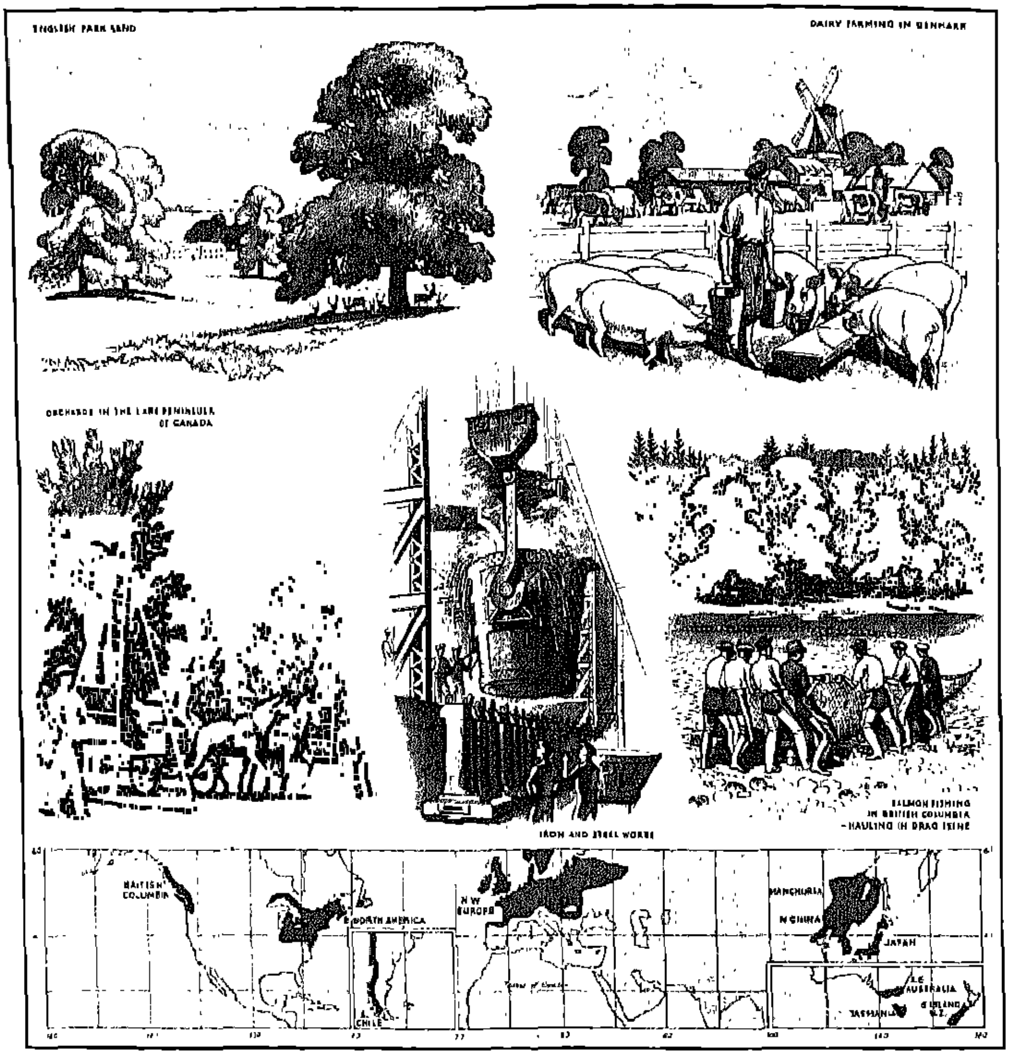


PLATE IV. GEOGRAPHICAL REGIONS—COOL TEMPERATE DECIDUOUS FOREST (WEST COAST TYPE)
(Class Picture No. 80 in the Portfolio.)

is one of the largest fur markets in the world.

The forest belt in Russia and Siberia extends southwards of the tundra, covering an area of many hundreds of miles. Some parts of the forest are so dense that only the edges of them have been visited by hunters in search of fur-bearing animals; in other parts less dense, clearings have been made and crops grown.

Owing to the lack of transport facilities, lumbering is not an important industry in Siberia, but these forests are the main source of the world's supply of furs, such as bear, silver fox, sable and ermine. Siberian and Russian skins come chiefly to Gorky (Nizhni Novgorod) in central Russia, and Leipzig in Germany. Leipzig, with its annual fair, is the greatest fur centre in the world, being situated in the middle of a great fur-

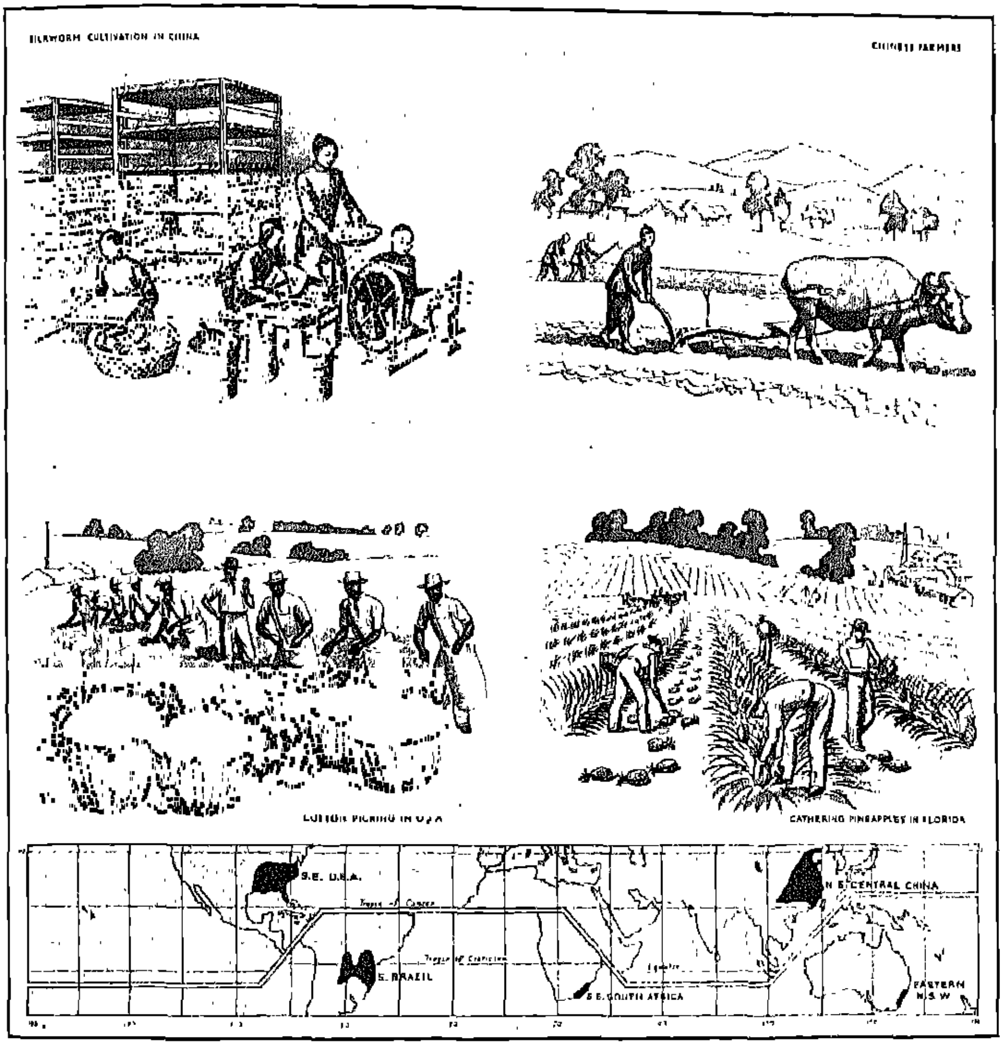


PLATE V. GEOGRAPHICAL REGIONS—WARM TEMPERATE DECIDUOUS FOREST (EAST COAST TYPE)
(Class Picture No. 81 in the Portfolio.)

wearing population. It should be rememberbered that only the most valuable furs come from the forest regions of Canada and Siberia; the rabbit and the seal provide most of the furs in common use.

Lumbering.—This region is the world's greatest reservoir of soft timber, valuable for building and constructional work, packing case and box making and for wood pulp employed in the production of paper. Transport is of first importance in dealing with timber and many areas of forest are inaccessible for development because of: (1) The flow of most of the large rivers of Eurasia and North America into the ice-blocked Arctic Ocean. (2) With the spring thaw the upper courses of the rivers melt before the lower courses, causing widespread floods and swampy conditions.

Consequently, lumbering is usually a

winter occupation, the logs being transported by sledge over the frozen ground. In British Columbia and parts of eastern Canada they are then disposed of in two ways: (1) By being floated down the rivers to the pulpworks and sawmills situated in the lower reaches. (2) By the use of electricity for power logging wherever the current can be generated easily. In this case the sawmills are established as close as possible to the forest, and the trunks of the trees, cut into convenient lengths, are transported to the mills on overhead travelling cables, by tractors, or by rail, Plate II.

Afforestation.—In the past, lumbering has been carried on ruthlessly and extravagantly without any attempts being made to repair the wastage. The danger of a future shortage has been realised and forestry has now become a science.

Deciduous Belt.—Regions suitable for this type of vegetation are those which have an all-year rainfall and which extend on the equatorward side of the coniferous belt. The chief areas of the world are the coasts of North America, western Europe, parts of the north-east coast of Asia, Tasmania, the South Island of New Zealand and a small part of southern Chile. Typical trees are the oak, elm, beech, lime, alder, birch, sycamore and poplar, conifers existing in highland areas or in patches of shallow soil, Plates IV and V.

Climate and soil conditions.—Owing to the equability of the climate and the richness of the soil, agriculture and industry have left little of the natural forests remaining. On the western coasts of the continents the prevailing west winds coming from the sea lower the summer temperatures and raise the winter ones.

The eastern coasts experience cold, offshore winds coming from the interiors of the continents and though more extreme are still very favourable for work, Figs. 8 to 10.

A further cause of the disappearance of the forests is the presence of rich mineral deposits in the soil. These, such as coal and iron, here form the basis of great manufacturing industries and clustered townships.

Man's work.—Mainly owing to natural advantages, this region represents modern civilisation in its highest form and covers to a great degree all the activities of the white races.

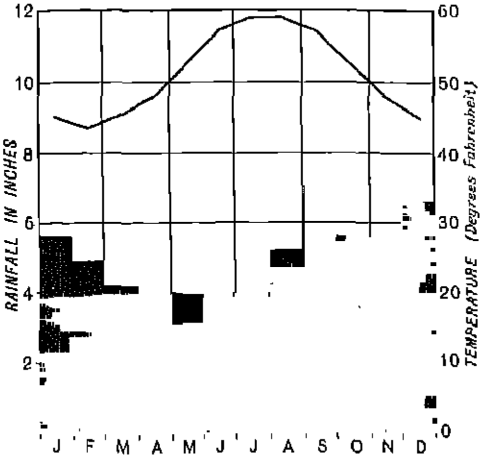


FIG. 8. WEST COAST DECIDUOUS FOREST TYPE—VALENTIA

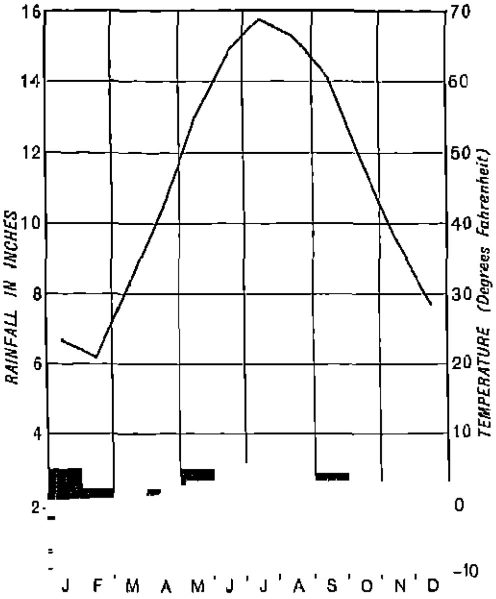


FIG. 9. EAST COAST DECIDUOUS FOREST TYPE—TORONTO

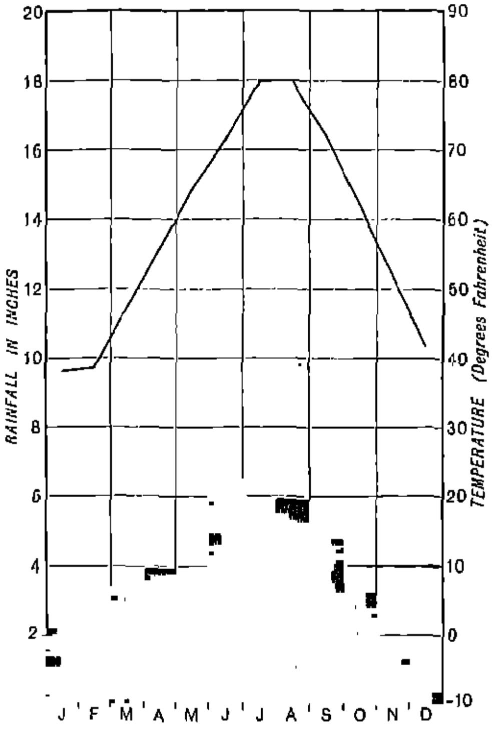


FIG. 10. EAST COAST DECIDUOUS FOREST TYPE—SHANGHAI

Cultivation of an enormous variety of crops according to soil and weather conditions have replaced natural vegetation; domesticated animals have ousted the wild ones; fishing is a scientific pursuit and is no longer the precarious occupation of native tribes, and industry and commerce occupy millions of people and knit together all other regions of the world.

Farming.—The typical crops are wheat in the drier parts, and oats, barley, flax, sugar beet and a large variety of vegetables. Fruits of the region are apples, pears, plums and cherries with smaller ones such as gooseberries, currants and strawberries.

Dairy farming is carried on very successfully on the rich pastures and sheep rearing takes place in poorer areas or where they are used in the system of crop rotation. By this is meant the scientific method of retaining the fertility of the ground where the rapid growth of population resulted in small farms and over-cultivated soil.

Fishing.—Situation near the sea has also led to the development of fishing on a scale unequalled elsewhere. Around the shores of north-west Europe and eastern North America occurs a large area of shallow water less than one hundred fathoms deep. The bed of the sea in this shallow area is called the continental shelf. Here, owing to the light and the warmth of the sun's rays, a great number of tiny sea plants and organisms flourish and help to provide an abundant supply of food for fish. Most of these organisms and plants drift along without any power of movement in themselves and are called *plankton*, a name derived from a Greek word meaning wandering.

Mining, manufacturing and *commerce* are further industries typical of the region. The manufacture of local products into cloth, linen or iron goods was a natural development from the mining of coal and iron. Then, where certain areas were situated near the sea, the advance of commerce resulted in raw materials grown in other regions of the world being transported for manufacture. The cotton and jute industries are cases in point, whilst nowadays such industries as the woollen, the flax, the hemp, the leather, the iron and steel, and the chemical, depend to a great extent on raw material brought from other parts of the world. There are, of course, areas of the deciduous forest still undeveloped, such as parts of Canada and southern Chile, the latter region being handicapped by the absence of any extensive lowlands.

Evergreen Belt.—This third section of the temperate forests occurs in the warmer parts on the west coasts of landmasses between latitudes 30 and 45. The typical vegetation is often known as *Mediterranean*, irrespective of its world position, owing to its existence being brought about by the special conditions of climate found in the lands bordering the Mediterranean Sea, Plate VI.

Besides the Mediterranean countries, other parts of the world included in this region are California, Central Chile, the area immediately round Cape Town in South Africa, the regions round Perth and Adelaide in Australia and a small part of the North Island of New Zealand.

Climate.—This is generally summarised by the phrase, "Winter rain and summer drought." During the winter these regions are subject to westerly winds from the sea which bring moisture. Summer, on the other hand, is a dry season because the direction of the winds is reversed and the regions are swept by trade winds blowing from the interiors of the continents. With regard to

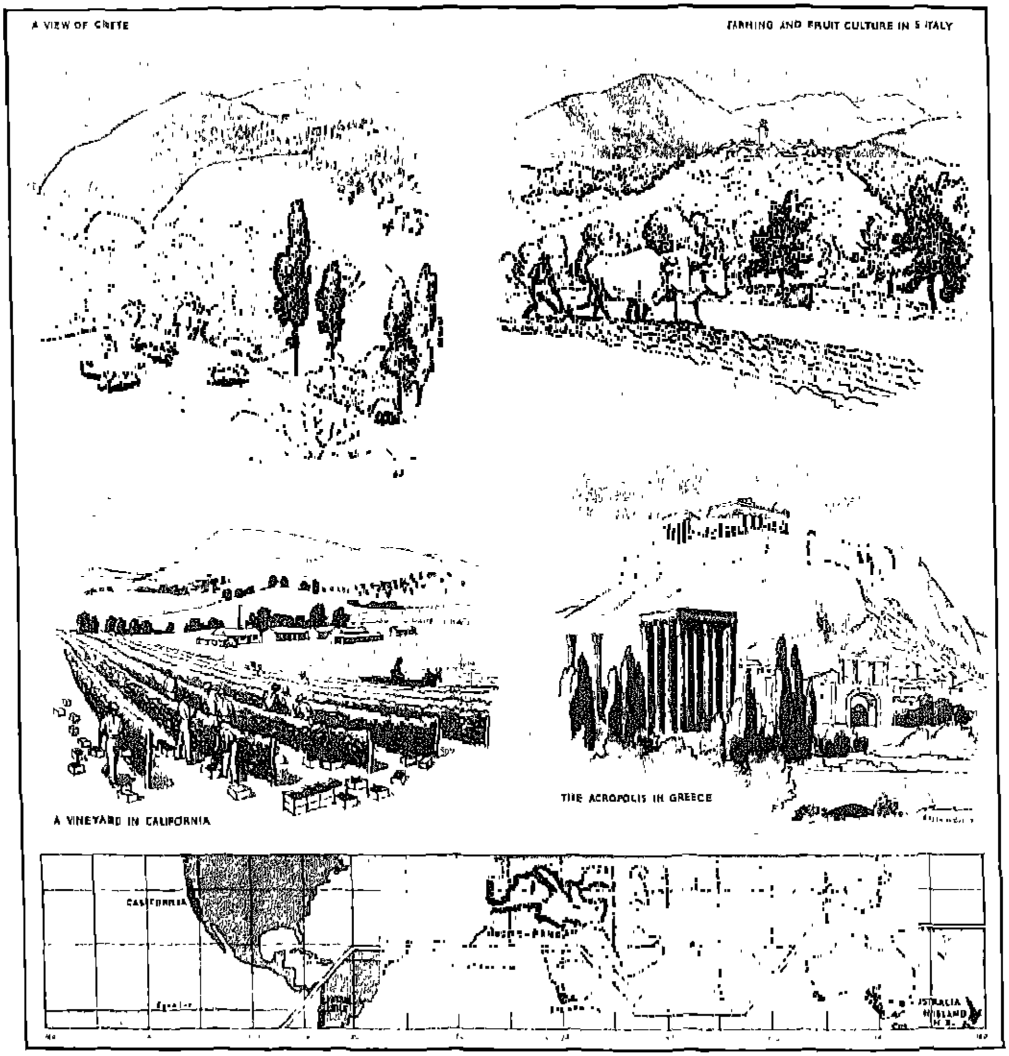


PLATE VI GEOGRAPHICAL REGIONS—MEDITERRANEAN TYPES
(Class Picture No. 82 in the Portfolio.)

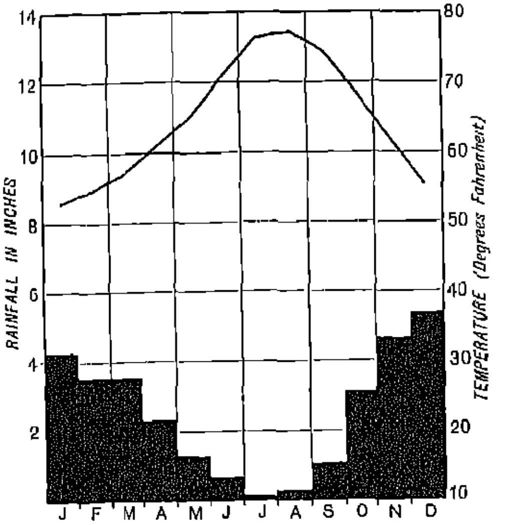


FIG. 11. MEDITERRANEAN TYPE—ALGIERS

temperature, the winters are definitely mild (average 50° F.) whilst the summers are hot (over 80° F. in parts), Fig. 11.

Vegetation.—All trees and shrubs are of the broad-leaved evergreen type and have developed special means of existing through the hot, rainless summers. The leaves are thick and waxy to resist an excessive loss of moisture and the roots extend far down into the subsoil for water. Very often the trees are stunted in growth and the fruit is protected by a thick or tough skin.

Typical examples are the cork oak, fig and olive trees, cedars and cypresses, whilst in the less fertile or mountainous parts a dense type of evergreen shrub abounds, an example of which is found in Corsica and is called *maquis*. It is a truly terrifying and dangerous experience to attempt to penetrate the *maquis* which in Corsica affords an excellent refuge for brigands.

Man's work.—This is another field of the white man's endeavour, but generally speaking coal and other minerals are not very abundant in Mediterranean regions and many of the industries are therefore concerned with the preparation of foodstuffs, drinks and products such as silk.

Timber is not an important product, as most of the trees are small and gnarled, but there are notable exceptions such as the jarrah and karri trees of south-western Australia. These give excellent hardwoods and are very useful for railway sleepers and in dock construction.

Grassland is poor in these areas and thus animal husbandry has never been of very great importance. The goat is perhaps the most typical animal, as it can thrive on very poor pasture and as a substitute for animal fats olive oil is widely used.

The outstanding characteristic of the region is in the scientific cultivation of indigenous plants. Just as wheat stands out as the typical product of all temperate regions, so the vine is the hallmark of Mediterranean lands. Other products are olives, oranges, lemons, peaches, apricots, and mulberries. To-day, thanks to modern methods of storage and transportation, the names of the regions devoted to the production of these fruits are household terms. Thus there are Seville, Jaffa, California and South African oranges, Messina lemons, Jordan almonds, Californian peaches, figs and raisins. The barrels of grapes packed in cork dust from Cape Town are equally well-known and also the dates from the Barbary States of North Africa and the dried and tinned fruits of Australia, Plate VII. Many wines are also named after the chief areas of production. Sherry after Jerez in Spain, Port after Oporto in Portugal and the trade mark of the emu immediately recalls Australia. Mulberries are, of course the fruit of the tree that supports the silkworm and Italy, Spain and part of France are important silk-producing regions.

Finally, wheat must not be forgotten, for an excellent hard-grained crop is widely grown. The particular, glutinous species are of special value in the preparation of macaroni, vermicelli and spaghetti.

Memory work.—1. *Coniferous* trees bear cones and can stand great cold. *Deciduous* trees lose their leaves in autumn and prefer mild weather, and *evergreen* trees are always

[*Reproduced by courtesy of Australian Trade Publicity Board.*

PLATE VII. PLACING SULTANAS IN DRYING RACKS

green because the winters are mild and the leaves can resist the dryness of summer.

2. Many farms of fur-bearing animals are now kept with the result that trapping is no longer the only source of supply.

3. Lumbering is the chief occupation among the coniferous forests.

4. England is in the deciduous forest region. It is thus easy to know the climate, the sorts of things that grow and the work the people do.

5. Most of the deciduous forests left are to be found amongst mountains; the rest have been cut down.

6. An equable climate allows people to be more active and to work for longer hours each day than they are able to in very hot or very cold lands.

7. Because of the *Mediterranean* regions in the southern hemisphere we can have fruit in England all the year round.

Activities and exercises.—1. *Questions.*—Find out the answers to these questions from the reference library or from grown-up friends and write them in your notebook:

(*a*) Which coniferous tree is not evergreen?

(*b*) Why are there special reservations for North American Indian peoples?

(*c*) Why are nearly all the fur-bearing animals not much bigger or smaller than a rabbit?

(*d*) Would you say that Spain has an equable climate? If not, why not?

(*e*) How are the tubes of macaroni made?

(*f*) What takes the place of butter in Mediterranean regions?

2. *Collections.*—If you live in the country make collections, grouped and labelled, of leaves and fruits of coniferous, deciduous and evergreen trees. If these are not available, collect wrappers from tins, boxes and

fruit and paste them in groups to represent the countries they come from.

3. *Maps.*—If you are interested in map work, these are excellent for exhibition:—a large one of the world in brown paper, illustrating by pasted pictures, sketches and wrappers the natural regions already taken; a further one showing steamer lines bringing fruit to England from Mediterranean lands. Use coloured paper, show towns in large squares and print names boldly.

4. *Prepare notes* for a lecturette entitled *From pine forest to newspaper.*

5. *Draw up a poster* advertising Empire products.

6. *Written exercises.*

(*a*) What are the four main industries of mankind? Why are large numbers of people in Britain engaged in transport work?

(*b*) Make two lists, one of deciduous trees and the other of evergreen fruits.

(*c*) What parts of the British Empire are in the Mediterranean region? Name the important towns.

(*d*) What fibrous plants are used in various manufactures? Name the countries where they grow.

(*e*) Put the following in their correct natural region:—goat, date, seal, pomegranate, dog rose, greengage, grapefruit.

(*f*) Write out in a reasonable and orderly way how it is that three separate types of vegetation can occur in the same temperate zone.

LESSON UNIT IV—TEMPERATE GRASSLANDS

Introduction.—As most children will be living in districts typical of parts of the region included in this section, an approach to the subject may readily be made from the results obtained from the study of local geography. The vegetation, type of people and forms of industry may be noted as resulting from an insular climate. Then by leading from narrow confines to vast areas of land, the term insular climate will develop into continental. At once new conditions arise from which children by now can be led to deduct the effect upon vegetation. From vegetation the next steps are animals and then people dependent upon both.

Owing to the vastness of the area involved the children will easily understand that conditions cannot be constant throughout. They can accordingly trace the encroachment of civilised peoples and the gradual utilisation of all parts where possible.

Extent.—In the interiors of the continents, passing from the coniferous forest towards the equator, the land gradually changes into vast areas covered with grass. Great expanses naturally experience irregular conditions of soil and temperature and accordingly the growth is of variable luxuriance, in parts, deteriorating into scrub and semi-desert. The chief areas where this type of vegetation

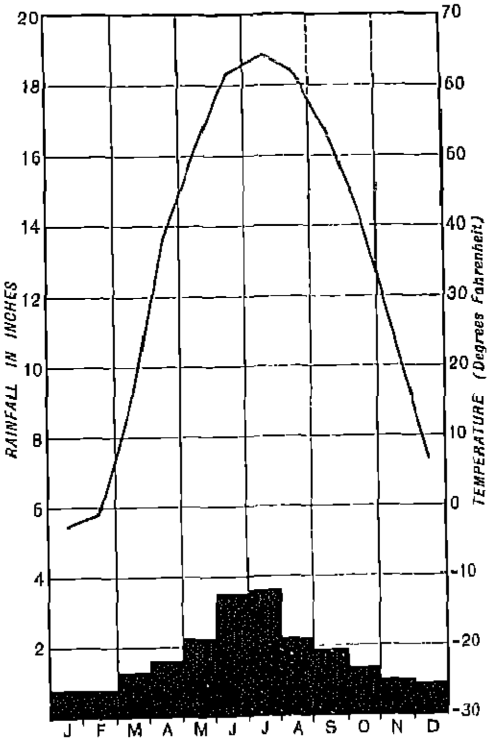


FIG. 12. TEMPERATE GRASSLAND TYPE—WINNIPEG

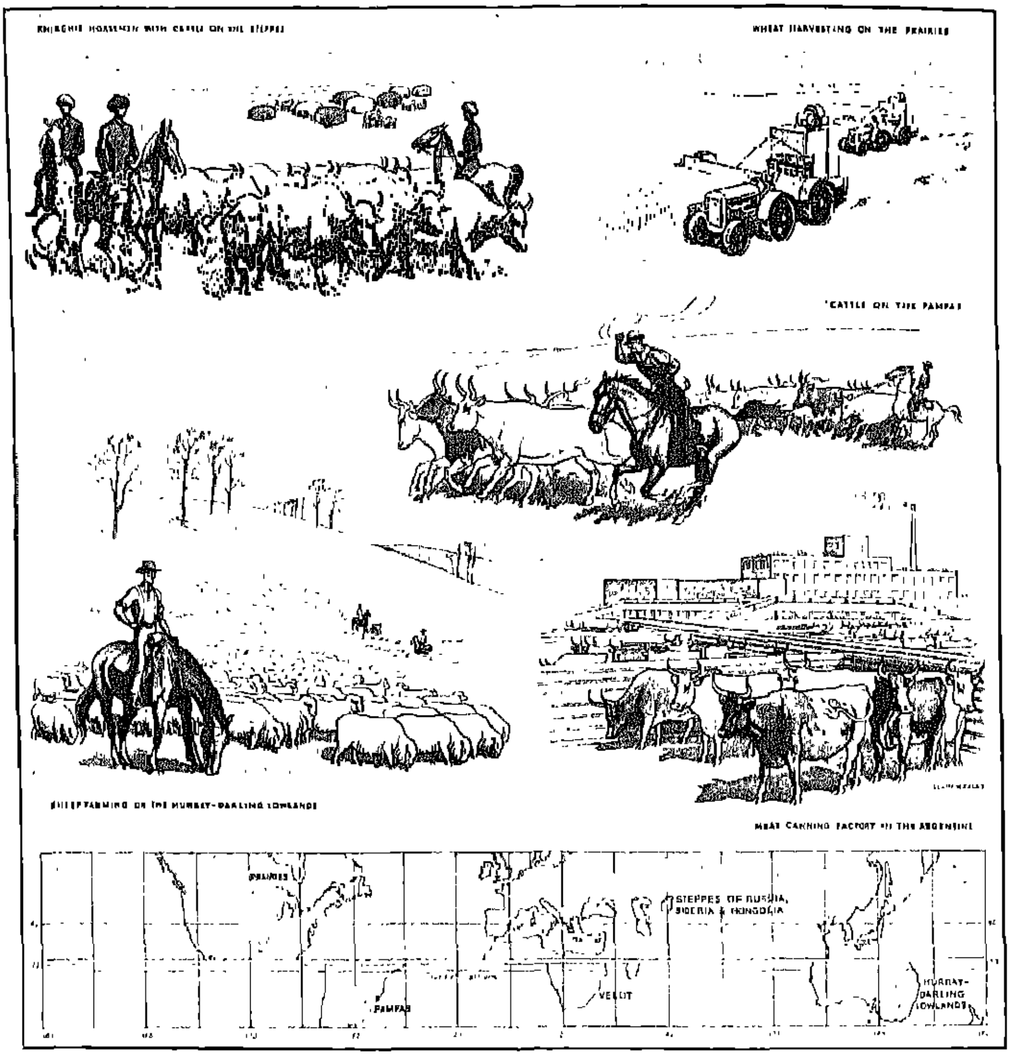

KHIRGHIZ HORSEMEN WITH CATTLE ON THE STEPPES
WHEAT HARVESTING ON THE PRAIRIES
CATTLE ON THE PAMPAS
SHEEP FARMING ON THE MURRAY-DARLING LOWLANDS
MEAT CANNING FACTORY IN THE ARGENTINE
PRAIRIES
STEPPES OF RUSSIA, SIBERIA & MONGOLIA
VELDT
PAMPAS
MURRAY-DARLING LOWLANDS

PLATE VIII. GEOGRAPHICAL REGIONS—TEMPERATE GRASSLANDS
(Class Picture No. 83 in the Portfolio.)

prevails are the steppes of Eurasia, the prairies of North America, the pampas of South America, the grasslands of south-east Australia and the veldt of South Africa, Plate VIII.

Climatic conditions.—Such a region is the natural development of what is known as a continental climate, which is characterised by low winter temperatures (often below 0° F.), and high summer ones (80° F.). These are due (*a*) to the absence of the moderating influence of the sea; (*b*) to the dryness of the air, resulting in a lack of clouds and rapid radiation of heat from the ground.

Such variations in heat cause, in winter, a high pressure system with the winds blowing outwards from the land, and in summer, a low pressure system by which air is drawn in from the oceans. As the latter winds have to pass over many miles of land before they arrive they have lost a great deal of this moisture and consequently the rainfall—mostly in late spring or summer—is light (from 5 to 20 in.), Fig. 12.

Natural vegetation.—The melting snows in spring provide ample moisture for a rapid growth of grass. Flowers appear in abundance and vast stretches present a beautiful though monotonous aspect until the advancing heat begins to scorch the face of the land. In summer the soil becomes parched and barren looking and then in a few weeks come the snows of winter to cover every trace of life. In such a region trees can find but little means of existence excepting in river valleys where there is a constant source of water, and although in the southern hemisphere the narrowness of the continents creates a less extreme form of climate, they are still very scanty.

Man and his work.—Such wide areas as the temperate grasslands are, needless to say, in varied stages of development. Over some, such as the remoter parts of the steppes of Asia, roam tribes of nomadic peoples and upon others, such as the prairies, the pampas and the Australian grasslands, civilisation has brought tremendous changes. A study of man's work in the whole regions consequently falls under two headings (1) native and (2) civilised.

1. **Native.**—A good illustration of the mode of life of the more primitive peoples is afforded by the Kalkar people of Mongolia who roam an elevated region north of the Gobi desert, where the bear and wolf are common and where in parts even the horse remains undomesticated.

People and characteristics.—The people, who are wiry and squat, live in family groups governed by the patriarch. He is the sole arbiter in all disputes, theft within the circle being regarded as a serious crime although quite permissible from other groups. Excepting when such occasions as war demand unity, families remain apart, independent and self-supporting. Despite this feature, they are exceedingly hospitable to strangers and will deprive themselves of necessaries in order to entertain their guests. The habit probably arises from the loneliness of a nomadic life and the desirability of information even if it concerns only straying animals. For food, the Kalkars exist mainly upon meat and milk, the former being usually stewed over a fire of dried manure and the latter drunk often in a fermented state. This fermented milk or *kumiss* is also a great delicacy among the Khirghiz, another of the steppe tribes. Tea is in great demand and large quantities are consumed.

Shooting and horse-racing are the main recreations of these wanderers and in the evening when the camp fires are lit the family settles down to a round of story telling for, like the Khirghiz, the Kalkars are great orators.

Work.—As the winters are too long for the cultivation of crops, hunting and herding are the chief occupations. Horses, camels and dromedaries are the usual beasts of burden but of greatest importance are the herds of cattle, sheep and goats. These are often of prodigious size, amounting to as many as ten thousand head. Needless to say, the men spend much of their time in the saddle, keeping their beasts on the move from pasture to pasture. They appear to be indolent by habit as steady labour is abhorrent to them, but they develop amazing bursts of energy over short periods when emergencies such as stampedes and storms call them into action. A life of constant toil would probably make them unfit to deal with these sudden and irregular crises. As a result of their mode of living their emotions are similarly unbalanced, now creating fits of ungovernable temper, now plunging them into the depths of melancholy.

Much of the manual labour of the group accordingly falls upon the women and besides their ordinary household duties they milk and attend the cattle, make the fur caps, long coats and thick boots that form the characteristic dress, and erect and dismantle the tents or *yurts* as they are called. These, the summer dwellings, are made of expanding lattice-work covered with felt, the winter ones being unpleasant huts of earth and willow.

Progress.—The conservative nature of the people permits little contact with outside peoples, commerce is undeveloped, and education non-existent. Thus, progress is almost imperceptible, a man's wealth still remaining in the number of horses he possesses and his currency restricted to such forms as tea-bricks.

2. **Civilised.**—Wherever conditions are acceptable to the white man and communication can be maintained with the outside world, enormous areas of the temperate grasslands have now been opened up for sheep and cattle rearing, arable farming and industrialisation. Science and invention have played a great part in the history of utilising these waste places for the service of man. Water is drawn up mechanically to bring life in seasons of desolation, machinery copes with thousands of animals and miles of land where man-power is scarce, trains provide links with distant markets and refrigerators preserve the freshness of products through climatic changes.

Sheep and cattle rearing.—The best examples of cattle rearing on a colossal scale can be seen in the prairies and the pampas. Great areas at present unsuited for crops owing to the dryness are fitted for cattle, and in Canada the ranches as they are called and in South America, estancias, cover many miles over which the animals wander at will. The farms are separated by fences of barbed wire which need constant repair by the cowboys in their periodic rides of inspection. Life is exceedingly lonely and the men, each in charge of quite a hundred beef-cattle, have little opportunities of contact with life in the larger towns. In the great South American estancias, often some 50,000 acres in extent, development is still more advanced than in the Canadian ranches. The population is greater owing to immigration from many European countries and whilst the peons or labourers are poor and lack the independence of the cowboy, the estancias are almost self-supporting and grow crops, provide their own electric power and light and even afford hospital accommodation.

Roads are poor in these parts owing to the lack of stones, but excellent railway systems have done much to counteract this defect.

Although sheep rearing takes place on the drier plains close to the Rocky Mountains, the Australian grasslands provide the greatest farms of the world. Here, careful breeding has led to specialisation in animals either for wool or for meat, the former being found as a rule in drier regions. Shearing is done generally by machinery and enormous quantities of wool and mutton leave the ports yearly.

Besides the nuisance of pests such as rabbits and dingoes, or wild dogs, many Australian sheep-runs experience a grave shortage of water. To combat this, as in the pampas, wind pumps are a feature of these districts and every means is taken to conserve the supply that falls in the rainy season.

The great importance of this area can be seen when it is estimated that there are now in the country some 114,000,000 head of sheep shared among 85,000 to 90,000 flock owners. Australian markets, too, are attended by buyers of all nationalities and as much as £250,000 worth of wool will be purchased in one afternoon.

Arable farming.—This stage in the development of the temperate grasslands is of the greatest concern to the modern world for the latter is now dependent upon these areas for the regular supply of wheat and other cereals. Enormous stretches of land in the U.S.S.R., North America, the Argentine and Australia are in full cultivation with wheats specially developed for rapid growth or for drought-resisting as the conditions demand.

All wheat requires a period of at least ninety days for full growth with sufficient moisture and a temperature of not less than 55° F. in the early stages, and dry, ripening heat in the later. These requirements account for the spring sowing in regions of severe winter and the consequent variation in the times of harvest. The vastness of the fields under cultivation have necessitated speedy methods of harvesting the grain, and enormous machines, some of which both cut and thresh automatically, have been invented. At present the cost of motor-driven machinery restricts its use in many parts and teams of from twenty to forty horses are then employed.

Industrialisation.—Up to the present, factories have not penetrated the grasslands to a great extent excepting at the points where towns have developed as collecting centres for the products of the country around. Even in these, the industries are based upon the raw materials present; in the towns of the cornlands, for example, cereal foods and linseed oil are prepared and in the cattle districts meat extracts, canned meats, bone-meal, glue, leather, lard and so forth are common.

The use of the coal that underlies large tracts of cultivated land may result in a great increase in industrial life, but although the development of mines has begun in central U.S.A., southern Russia and is suggested in Western Canada, up to the present the coal extracted has been for the use of railways and the fields remain for the time being a reserve for future exploitation.

Memory work.—1. The temperate grasslands are found mainly in the interiors of the continents between 35° lines of latitude and the coniferous forests.

2. They are enormous, level, treeless plains.

3. Special names have been given to them by the people who live there. Prairies in North America, pampas in South America, steppes in the U.S.S.R., veldt in South Africa.

4. Grass and flowers only grow wild in these lands because the climate is continental, that is, very cold in winter and very hot in summer.

5. A continental climate comes to a land that is a long distance from the sea.

6. The native peoples of grasslands are nomads, or wanderers; they have to wander to give fresh pasture to their cattle.

7. The women of the nomadic peoples work harder than the men.

8. White people have now turned many miles of grasslands into farms for sheep, cattle and cereals.

9. They call the farms cattle-ranches in North America, estancias (a Spanish name) in South America, and sheep-runs in Australia.

10. If it were not for the grasslands, most people in Great Britain would be without flour and bread.

Activities and exercises.—1. *Diagram.*—Find out from a reference book, such as *Whitaker's Almanac,* which countries of the grasslands produce (*a*) the most wheat; (*b*) the most wool; (*c*) the most beef. Three for each will do, but show how one is more advanced than another by means of a diagram in colour.

2. *Make a sketch* of these and put the type of person who lives in each, standing or sitting by the side:—Tepee, igloo, yurt.

3. *Write a vivid description*, as a Kalkar might tell it round the camp fire, of a cattle stampede on a dark night. Don't forget to make it full of noise, confusion and hurried movements.

4. *Collection.*—Many of you may have seen in front gardens a clump of very tall grass that breaks into graceful, feathery looking flower heads. That is pampas grass, grown (in England) for ornamental purposes. Try to obtain a specimen to add to your school collection of interesting things.

5. *Write down* more than six things, if you can, that come from each of these:—Wheat, cattle.

I will give you a start:—Corn flakes, semolina, Brand's essence, horn.

6. *Begin a series of models* for exhibition entitled *Native Dwellings.* You can start now with an igloo, toupig, tepee and yurt. Where possible build and weave with proper materials. Do not be satisfied with paper only.

7. *Map.*—Add to your illustrated map showing the previous natural regions. Find out more towns to mark and if there is a big river, put it in also.

8. *Poster.*—You have seen many humorous posters advertising Bovril and Oxo. Try to invent one to advertise Merino wool.

LESSON UNIT V—HOT DESERTS

Introduction.—From past experience children are apt to associate this natural division with sand, oasis, camel and Arab and very little else. They are now ready to accept a wider view and a whole series of interesting lessons can be drawn up, taking them beyond the Sahara into the other great deserts with their special conditions and embracing land forms and eroding influences, climatic causes of desert regions, distinct classes of inhabitants and their reactions according to the struggle for existence, and the effect of irrigation and modern development. At the end they should realise that the desert is by no means a waste place but a reservoir of great natural wealth that is awaiting only the ingenuity of man in order that it may be released for his benefit.

Extent.—The hot desert belt lies approximately between latitudes 20° and 30° on the western sides of land-masses. As with the other regions studied, these lands vary in extent according to the size of the land-mass and the position of the highlands. Thus, the Atacama desert is a narrow strip running between the Andes and the west coast of South America, the Kalahari desert extends inland because the south-east trades lose most of their moisture by the time they are halfway across the continent of Africa, and in Australia the arid region stretches still farther owing to the position of the mountains on the east side of the continent.

In the northern hemisphere, the desert zone is still more extensive, passing from the shores of the Atlantic, across to Arabia and into Baluchistan and the Thar of India. In North America the deserts of Colorado and Mexico lie on the lee side of the Rockies, Plate IX.

Climatic conditions.—The aridity of the lands is due to the drying effect of the prevailing trade winds which, in turn, is caused by (1) their direction from land to sea, and (2) their passage from cool to warm regions. Rainfall consequently is always low, sometimes occurring only once in four or five years. It might be expected that the coast regions would obtain rain from local sea breezes, but here again the shores are washed by cold ocean currents flowing to the equator. Winds blowing over cold water lose most of their moisture by condensation and thus arrive in a very dry condition.

With regard to temperature, the absence of cloud results in great contrasts between day and night. In some regions 180° F. have been recorded at midday and at night

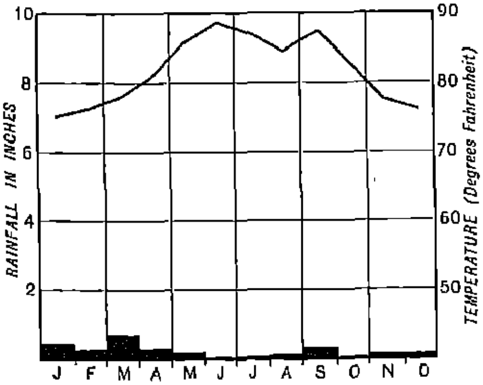


FIG. 13. HOT DESERT TYPE—ADEN

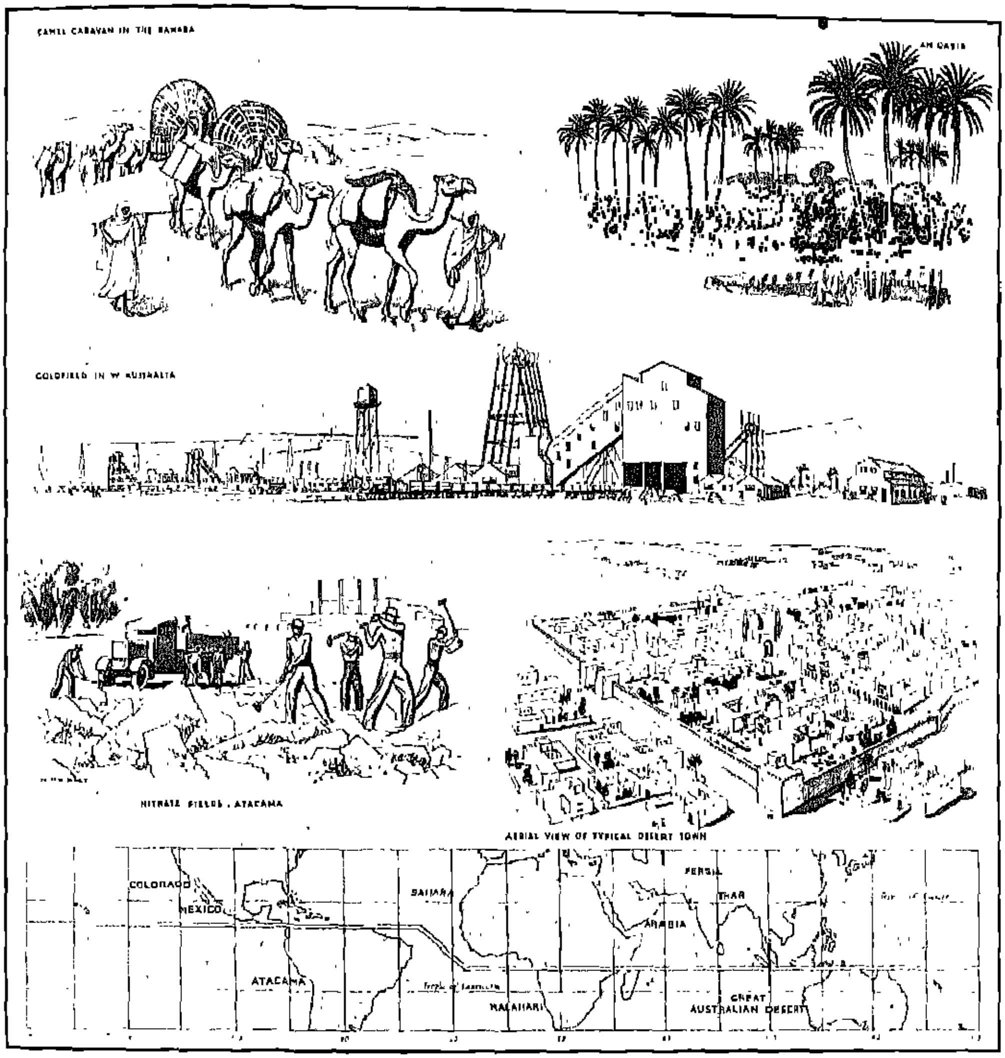


PLATE IX. GEOGRAPHICAL REGIONS—HOT DESERTS
(Class Picture No. 84 in the Portfolio.)

the temperature has fallen to below freezing point. The average midsummer temperature in the Sahara is approximately 90° F. and in midwinter, 60° F., Fig. 13. Where fogs occur, in coastal regions, modifications are frequent, the average summer heat of the Atacama desert, for example, reaching only about 70° F.

Land forms.—Hot deserts are by no means vast undulating stretches of land only, but often contain areas of dry, baked clay, coverings of broken rock and pebbles and in places, as the Tibesti Highlands of the Sahara, gaunt mountains rear themselves surrounded at their bases by masses of broken materials. Two main forces are at work in the construction of the general soil formation. These are (1) temperature, (2) wind.

1. *Temperature.*—The rapid changes between day and night subject the rocks

to great stresses by expansion and contraction and often in the day sounds like the report of a gun are heard due to the bursting of an overheated stone. Pieces of all sizes are disintegrated, the large ones accumulating at the foot of hill slopes as screes, the lighter material being swept along by the wind.

2. *Wind*.—The sand blast forms a notable cutting instrument, the larger fragments, that have the greatest effect, hopping and bumping just above the surface or along the ground until they are finally hurled at projecting masses. Consequently, one of the characteristics of desert landscapes is the *mushroom rock* with its base all but removed by flying fragments. On the neck of the well-known Sphinx this eroding effect has brought into prominence the distinct formation of the sandstone.

One other feature of the desert is seen in the *wadis*, or small valleys formed by the torrential streams that rush down the highlands temporarily after a sudden fall of rain. They do not proceed far and their ends become choked with masses of material carried from the heights. The spates are very infrequent but owing to their suddenness they can be very destructive to camps and beds. Once, in Algeria, a flood of this description carried away twenty-eight men of a battalion of Chasseurs d'Afrique.

Vegetation and animals.—The terms desert and vegetation may seem incompatible and yet allowance must be made for the sudden profusion of herbaceous plants and grassy carpet that appear following an unexpected torrent only to disappear as rapidly as they came, perhaps for many years. Then there are the border areas to consider and also those parts where water comes near the surface, resulting in the formation of oases.

With regard to the border areas, the most characteristic type of vegetation consists of plants capable of withstanding prolonged periods of drought, such as tamarisks, cacti, thorny shrubs and aloes. Such plants have long roots which can penetrate to subsoil moisture, and fleshy stems and leaves in which water can be stored. Often the stems and leaves are covered with a coating of wax which prevents loss of water by evaporation. Around the desert margins vegetation increases; those parts approaching the tropical grasslands have tough wiry grasses, and those bordering the Mediterranean regions a very poor type of scrub.

Oases are generally astonishingly fertile. They vary greatly in size; some are merely a clump of palm trees surrounding a pool or well, others, such as the Tafilet and Figig oases of the Sahara, cover many hundreds of square miles.

Date palms are the most common tree, but all sorts of other crops are grown, such as rice, millet, wheat, cotton, coffee, tobacco, sugar, vines, figs, olives, mandarin oranges, and apricots.

Desert animals are few in number, the camel being by far the most important, as it can go for a great length of time without water and its large, flat, padded feet prevent it from sinking into soft ground. It provides milk for food, hair for cloth, skin for leather, whilst dried dung is used for fuel. Camels carrying freight up to two or three hundredweight can march at about three miles an hour and cover about twenty miles a day, whilst the riding animals can keep up a speed of six miles an hour for ten or twelve hours at a time.

Desert dwellers.—The peoples of these regions may be divided into four distinct classes:—(1) hunters, (2) nomadic traders and herders, (3) oasis dwellers and occupants of irrigated land, (4) settlers. Each group portrays the conditions existing in a particular form of desert and accordingly an outstanding example will be taken in each case.

1. *Hunters*.—These may be illustrated best by the Bushmen who live in the most extreme part of the Kalahari desert in South Africa where, although the aridity provides no food for domestic animals, there is abundance of game along the desert borders.

The Bushmen are short, slight, yellow to olive-skinned people, very active and capable of great feats of endurance. They are very independent and have practically no tribal organisation, social matters being in the hands of the elders. During the hunting season several families unite into a group that is allotted its own special territory and in this period also the main religious ceremonies are observed. For clothing, these people wear the short apron, sandals of bast or skins for the feet and a springbok-skin kaross or mantle that serves as a sleeping blanket. The women roll their short hair into knots and distribute it like peppercorns about their heads. Their dwellings are either rude shelters made of woven reeds or very often holes in the earth. They have practically no household utensils and generally keep liquids either in earthenware pots or in ostrich egg shells. To obtain fire the primitive method of rubbing sticks together is employed.

The Bushmen are amazingly skilful hunters and are familiar with the habits and movements of all the animals, being able to imitate their cries very accurately. Their weapons are primitive bows and arrows, the latter being generally made of reeds, tipped with bone or stone which has been coated with poison. The only other implements they use are short clubs for defence and digging sticks made of a spike of wood which passes through a hole in a round flat stone. The latter are used to dig up the roots of various plants or ants' eggs (Bushman rice). At certain periods game becomes very scarce, and the Bushmen have to subsist for long periods on such delicacies as lizards, snakes, worms, lice and ants. When they can obtain more substantial food they eat prodigious quantities at a time since meat will not keep for long in such a climate.

2. *Nomadic traders and herders.*—The best examples of these peoples are found in the Sahara among the widespread branches of the Arab races. Two definite sub-divisions can be traced, the camel nomads who owing to the attacks of fly are limited to regions north of latitude 13° and the cattle folk who can find sufficient pasture south of this lattitude.

Both classes are a very independent people, organised into tribes each under the control of a sheikh and sub-divided into family groups led by a sheikh subordinate to the tribal one. As they are wanderers, their dwellings are mainly tents, made from goats' and camels' hair spun and woven by the women.

Movements of the families are by no means casual; the departure is *en masse*, for the whole life of the tribe depends upon the supply of water and pasturage and, as it is often necessary to dig temporary wells in places where water comes reasonably near the surface, considerable man-power is required. Ownership of permanent pasturage is frequently the cause of dissension among families and tribes and even to-day blood feuds are still rife. The camel folk act as carriers between the desert margins. When trade is scarce they turn to pillaging caravans or raiding oases, and those parts of the Sahara where there is pasturage for camels form excellent bases from which they can operate; alfa grass is the principal type of pasturage, and is also used for fuel and for the making of hats, mats or baskets. The date palm is of the utmost importance since it provides very sustaining food whilst its fibre can be used for making ropes, and, as in Biblical times, water is still conveyed in bags of goats' skin.

Summing up, the chief characteristics of these people are their mobility and constant readiness for defence or attack. Monotonous surroundings seem to have developed in them a philosophical outlook and although the evil eye is a universal belief they are remarkably free from the superstitions of their brethren of the village and town.

3. *Dwellers in oases and upon irrigated land.*—The Beni-Mzab of the Shebka Oasis are typical of these people in the first case, and in the second the occupants of the Nile and the Tigris-Euphrates valleys.

The former are a very honest, peaceable people who live in a region where high temperatures enable them to be busy with crops all the year round and who consequently depend upon alliances with stronger desert tribes for protection.

Rain is very infrequent, but a permanent water supply is contained in hundreds of wells, some of which go down 200 ft. into the ground, every owner of a patch of ground having to possess his own.

The houses are made of mud bricks cemented over with mud which dries a beautiful orange colour. Desert sand is a great cleansing agent, and the people are meticulously clean, burying all refuse carefully. Their principal food is *kuss-kuss*, a dish consisting of grain ground up and mixed with vegetables, eggs and fruit. Meat is rare although the people possess sheep and goats which are tended by Arab herdsmen hired for the purpose. Dates and honey also figure largely in the diet.

The life of these people is regulated strictly according to rules laid down in the Koran, and the women are confined indoors. Emigration is a necessity and many of the men leave the oasis to seek their fortunes elsewhere, although they often return after a period of years.

Apart from agriculture the Mzabs' main interest in life is trade, a daily auction being held after the evening call to prayer and a big market on one day in each week.

The second type of people has reached a still higher stage of development. Civilisation developed early in the regions of the great rivers, since life could be sustained easily, yet not without planning for the future. The natural products were insufficient for man's needs, but at the same time the genial climate, the fertile soil, and the abundant water supply made cultivation easy. In the Nile valley the flood comes at a very convenient time, but it had to be harnessed, and thus irrigation was developed early. The social results of irrigation were tremendous and led to the formulation of laws for water control which in turn helped to form a stable system of government. The variety of products in the different parts of the valley tended to develop trade and the interchange of ideas within the area. Lastly, the protection afforded by the desert enabled progress to go on steadily and the people were seldom hampered by invasions.

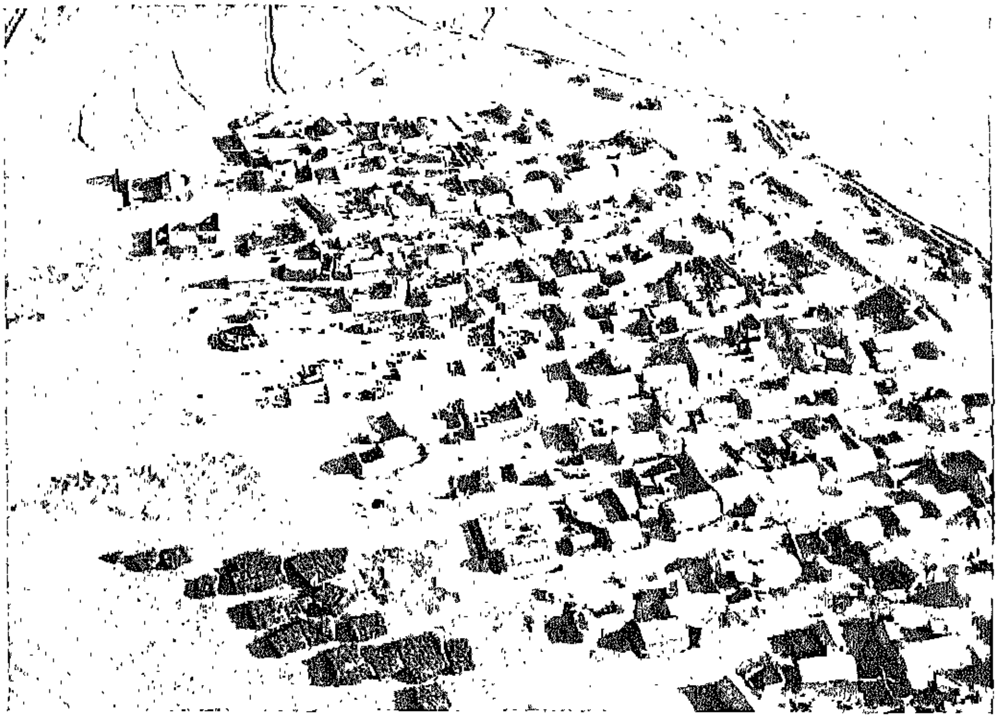
To-day, the flood water in the Nile is controlled scientifically by huge dams or barrages, and thousands of acres of previously arid land are now so fertile that two or three crops can be grown on the same field each year. In winter, temperate crops such as wheat, barley and pulses are raised, whilst in summer maize, rice, cotton and sugar can be grown.

The great fertility of the land has given rise to a dense population which, as an agricultural region, has resulted in:—(*a*) Extreme poverty among the fellahin or peasants who work very long hours for an indifferent livelihood; (*b*) the high cost of land; (*c*) very small farms, many being no larger than a football pitch.

The houses of the people are generally made of mud bricks and are grouped in villages built on high ground so as to be out of reach of the floods, Plate X. Such villages are often surrounded by palm trees and appear very attractive from a distance, although a closer inspection reveals an appalling spectacle of dirt and squalor.

4. *Settlers.*—These people include the many thousands who have been attracted to desert regions solely on account of the existence of minerals, such as the nitrates of Chile, the diamonds of South Africa, and the gold of Australia. These people face the many hardships of such an existence in the hope of acquiring sufficient wealth to enable them to return to more comfortable surroundings.

The water supply is the main difficulty in such settlements and used to be obtained by distilling the salt water raised from the wells, but this soon proved to be hopelessly inadequate to meet the needs of the thousands of people who flocked to the gold fields. Now, in Western Australia, the water is



[*Reproduced by courtesy of the American Colony Photographers.*

PLATE X. AIR VIEW OF TYPICAL DESERT VILLAGE, IRAQ

pumped a distance of 300 miles from a reservoir in the hills near Perth where the rainfall is 40 in. per annum. Settlements in the nitrate fields of Chile in the same way depend entirely on outside sources of supply for all food and water.

Memory work.—1. Hot deserts are found both sides of the equator, on the western sides of the landmasses and between latitudes 20° and 30°.

2. They are here because they are in the region where the trade winds have become dry, that is, they blow from land to sea.

3. Most of the desert sand is like dust that has been made by the rocks splitting owing to the sudden change from great heat by day to bitter cold by night.

4. Desert plants are fleshy in order to hold water, and shiny or wax-covered to prevent their water from evaporating.

5. Where the strata of rocks below the earth, bearing water, come close to the surface, oases are formed. These are fertile places, some being only large enough to provide grass for a herd of cattle for a day or two and others big enough for many people to live in villages.

6. In the world there are four classes of desert dwellers: hunters, wanderers, people of oases and irrigated lands and settlers.

7. Irrigated land is desert that has been made fertile by leading water to it by canals from a large river perhaps many miles away.

8. Great irrigation works have made prosperous farms for thousands of people in the desert lands of Egypt, North-west India and Australia.

Activities and exercises—1. *Questions.*—Here are a few subjects that may require a search in the reference library:

(*a*) Why is there no twilight in the desert?

(*b*) What is a burnous?

(*c*) In the desert, native people wear sashes in many folds. Why is this? (Not merely to hold knives and pistols.)

(*d*) If little canals bring the water to a farm, how does a whole field get an even share of moisture?

(*e*) Which part of the head must be specially protected in the desert in order to avoid sunstroke? What do white people do about it?

(*f*) The horses harnessed to the pole that works the native water wheel are always blindfold. Why is this?

(*g*) If the desert trade winds are dry, whereabouts in the world are they wet?

(*h*) In which deserts are found the bactrian, or two-humped camel, and what is the name of the one-humped species?

2. *Write a sentence* describing each of the following, saying what they are and where they belong:—wadi, the Sphinx, alfa, fellahin, kaross, scree.

3. *Models.*—Add to your collection of native dwellings by building a white, rectangular hut as seen in an oasis.

Two other good working models that can be made in stiff card or wood are the native methods of drawing water—the shadoof and the sakia or horizontal water wheel usually worked by an ox or a horse.

4. *Lecturette.*—Here are some subjects for a lecturette or an article for the school magazine:—Gold digging in Australia; from Cairo to the Siwa Oasis by camel; Among the Bushmen.

5. *Write down a list* of desert products that you have actually seen in the local shops.

6. *Desert scenes* make splendid subjects for cut paper work. Do not forget the light is very strong in the desert and the contrasts in colour and light and shade are very pronounced.

7. *Chart.*—Use these facts as a printing exercise. In coloured letters properly spaced it would make a chart to hang in the geography room. Use your own arrangement, the fewer words, the better.

Wheat is the hallmark of Temperate Grasslands.

The vine is the hallmark of Mediterranean Lands.

The date palm is the hallmark of Desert Borders.

Leave room for two more to come. If you can think of more, add them but they must be the chief product of a special region.

LESSON UNIT VI—HOT GRASSLANDS OR SAVANNAHS

Introduction.—Although the savannahs may be considered to be parkland and therefore distinct from grasslands proper, it is considered that the types are so interwoven and the climatic conditions so similar that further division would tend to create confusion in the minds of the children. Accordingly, this has been chosen as the first of the three divisions that come wholly within the bounds of the tropics.

It may be advisable at the outset to revise sections of previous lessons on earth movements or the apparent course of the sun in order that the children may fully understand the significance of being under the influence of direct heat and consequent heavy rainfall, in this case, for part of the year. A general reminder of the results of frigid and temperate conditions will lead directly to an expectation of the peculiarities of life within the tropics and such characteristics as rapid and coarse growth, and coloured peoples will be a natural deduction.

From experience with the previous regions, variations in types will be quite understandable and when it comes to a study of the influence of modern civilisation the increasing difficulties of the white man with regard to overcoming the effects of climate must be appreciated in comparing his progress with that in other parts of the world.

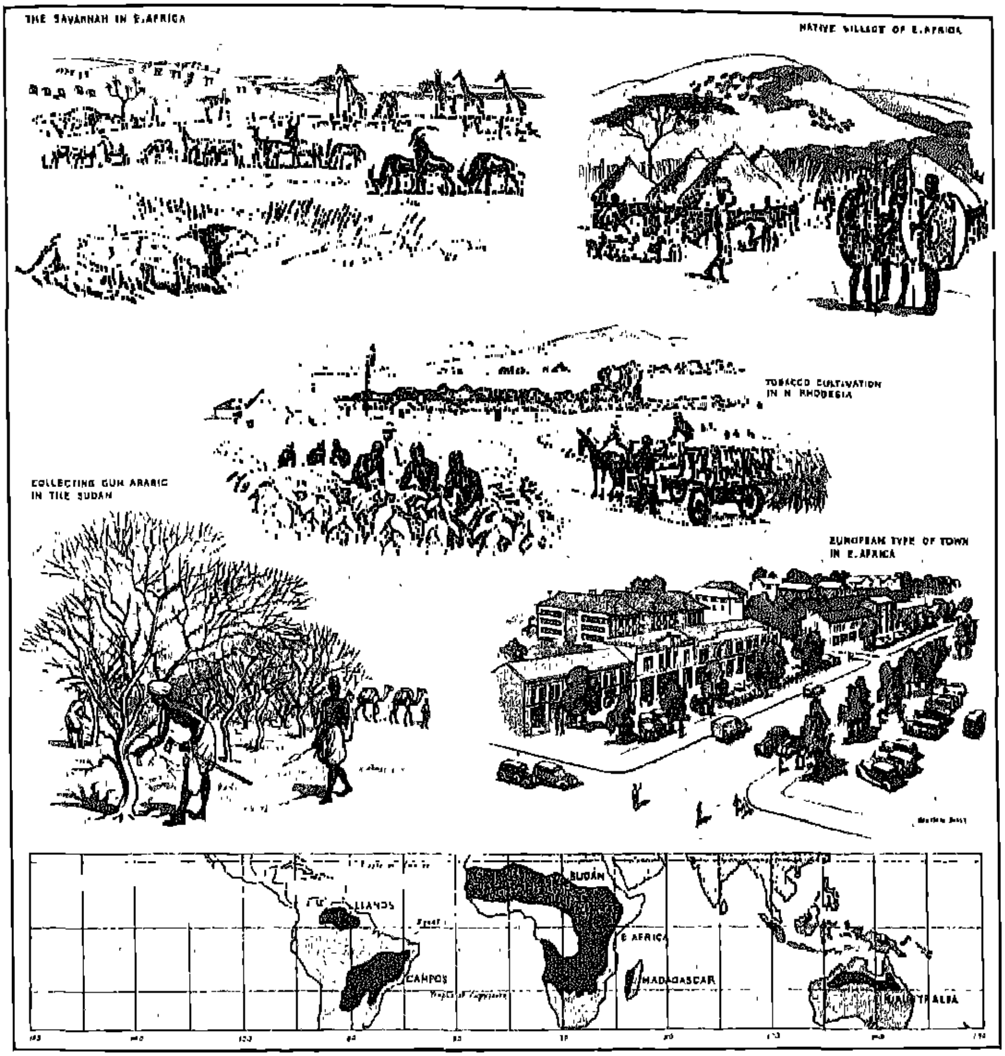
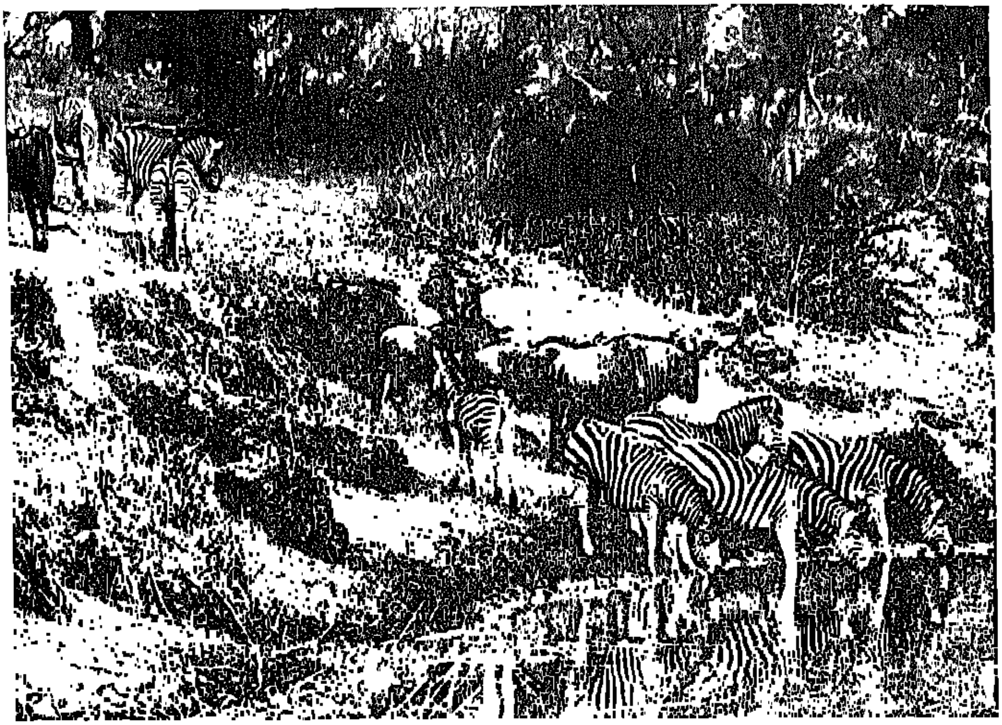

THE SAVANNAH IN E.AFRICA
NATIVE VILLAGE OF E.AFRICA
TOBACCO CULTIVATION IN N. RHODESIA
COLLECTING GUM ARABIC IN THE SUDAN
EUROPEAN TYPE OF TOWN IN E.AFRICA
LLANOS
CAMPOS
SUDAN
E AFRICA
MADAGASCAR
AUSTRALIA

PLATE XI. GEOGRAPHICAL REGIONS—SAVANNAH
(Class Picture No. 85 in the Portfolio.)

Extent.—Passing from the hot deserts towards the equator, vegetation changes from coarse scrub and grassy tufts to areas of tall grassland broken by occasional clumps of trees. The grass grows to some 8 or 10 ft. in height, gradually becoming more rank and trees more dense as the equatorial border is approached. This, the savannah region, is most prominent in the three southern continents, South America, Africa and Australia. In South America it goes by the name of *llanos* in the Orinoco basin and *campos* on the Brazilian plateau. The African area stretches south of the Sahara from the west coast across to Abyssinia, passing over the equator on account of the height of the plateau of East Africa, and then joining with the savannahs of Rhodesia and Angola. In Australia, the region is found north of the



[Fox Photos.

PLATE XII. ZEBRAS AND WILDEBEESTE IN KRUGER NATIONAL PARK, TRANSVAAL

desert lands and extends right across the continent, Plate XI.

Climatic conditions.—Normally most of the rainfall of equatorial regions is caused by the rising and consequent cooling of warm, damp air. Hence, the greater part of the savannahs experiences two seasons, rainy when the sun is on the one side of the equator and dry when it is on the other. In the higher lands, however, the ground is not warm enough to cause strong, upward currents excepting when the sun is immediately overhead. This results in two wet and two dry seasons, or two summers and two winters, since the sun appears to cross the equator twice a year. Temperatures are usually high all the year round, 80° to 90° F. being the average in summer and 70° in winter, Fig. 14.

Vegetation and animals.—It is the seasonal character of the rainfall that is responsible for the shortage of trees. Without a regular supply of moisture they cannot compete with the extraordinary growth of the grass during the rainy season. Plants too are mainly of a bulbous type and develop rapidly, but despite the lushness of the growth all becomes withered in the dry season.

Examples of animal life are probably best seen in Africa where amongst the herbivores many types of antelope, zebra, giraffe (Plates XII and XIII), eland and buffalo are outstanding, the lion, leopard and cheetah representing the carnivores. Ostriches, secretary birds, cranes, vultures and eagles are found among the larger birds and there are innumerable smaller fowl such as the partridge, guinea fowl, duck and teal.

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PLATE XIII. TYPICAL SAVANNAH, WITH HERD OF GIRAFFE

Man.—Development of the savannah land is very slow owing to a variety of hindrances that discourage settlement. These, in general, may be summed up as: (1) Poverty of the soil in many places. (2) Lack of irrigation to combat the aridity in the dry season. (3) The prevalence of pests such as the white ant, the tsetse fly and the locust that are disastrous to property and cattle.

Native life.—Many tribes of native peoples exist and combine hunting with a crude form of agriculture and cattle raising. Of the herding type, the Ba-Nyankole of the African savannahs east of Lake Albert Edward offer a good illustration. They are a fine, tall people with woolly hair which they shave with the exception of two small tufts on the top of the head.

Owing to the frequent movements of the families, the homes are of a rough, temporary character constructed from earth or wood thatched with grass.

The Ba-Nyankole are devoted to their cattle which are often quite tame, given free access to the houses, and are dosed with the precious salt every month. Despite all this attention, however, the animals are not very good specimens and give very little milk compared with the carefully bred cows of this country.

Many curious restrictions are placed on the diet of the people. Thus, if meat is eaten, milk may not be drunk until twelve hours have elapsed; if a plantain is eaten milk must be abstained from until the next day.

Of the people who have come under European influences whilst retaining their native characteristics, the Zulus who inhabit special reserves of north-east Natal are outstanding. Some 250,000 occupy large

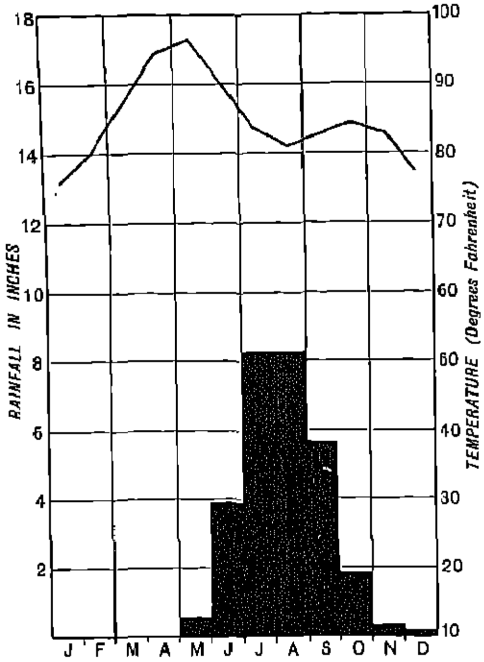

FIG. 14. SAVANNAH TYPE—KAYES

villages and practise agriculture during the rainy season although the men still retain their natural instinct for hunting and cattle keeping and leave the care of the land to the women.

Tribal organisation continues and a complex system of laws is in force regulating the inheritance of property which is estimated by the number of cattle in possession. Many difficulties arise owing to the practice of polygamy and the exchange of cattle brought about by marriage.

The houses are rather like beehives in appearance (Plate XIV) and are generally erected on piles. Frequently the skull of an ox adorns the roof, and is supposed to act as a sort of charm. Ancestor-worship is common, and traces of totemism are found, since the people believe in the existence of the spirit after death, which, they think, enters another body, generally that of an animal. The witch doctor still exerts a great influence over the natives, who regard him as a purifying agency in the life of the tribe, and resent any attempt to limit his power.

In the savannahs of French West Africa the people also combine primitive agriculture with cattle keeping, and here the main crops produced are maize, millet, ground nuts and indigo. Over large areas cattle keeping is made impossible by the ravages of the tsetse fly whose bite is fatal to cattle. The low-lying areas are the chief to be affected by this pest. On the desert margins, especially in the region bordering the Sahara, a tree known as the gum acacia is very common, from which gum is obtained by tapping the stem in a way similar to that by which rubber is obtained.

European influences.—Rhodesia is probably the most developed savannah region in the world. Many parts are over 5,000 ft. high, suffer less from the hindrances of the lower districts and are more suitable for white settlers. In places, patches of evergreen forest occur and the hard-wooded native teak and the baobab, of great utility to the native for its fibre for net weaving and its fruit for thirst quenching are well-known. Farming of both the ranching and mixed type is carried on. Maize and tobacco are the principal crops with cotton, ground nuts and winter wheat as subsidiary ones. With the advance of irrigation it is expected that the cultivation of maize will be more widely extended.

Mining is now an important activity and asbestos, coal and chrome-iron ore are all produced, the latter being especially useful in the preparation of special steels. Nearby in the southern section of the Congo area gold, copper and zinc are also found.

The two areas in South America are still in a very backward stage and particularly so in the llanos where disease amongst cattle and insect pests are at their worst. Extensive floods in summer and dried-up lands in winter present additional difficulties and the consequent meagre existence provides little attraction for the white man. On the campos conditions are also unfavourable.

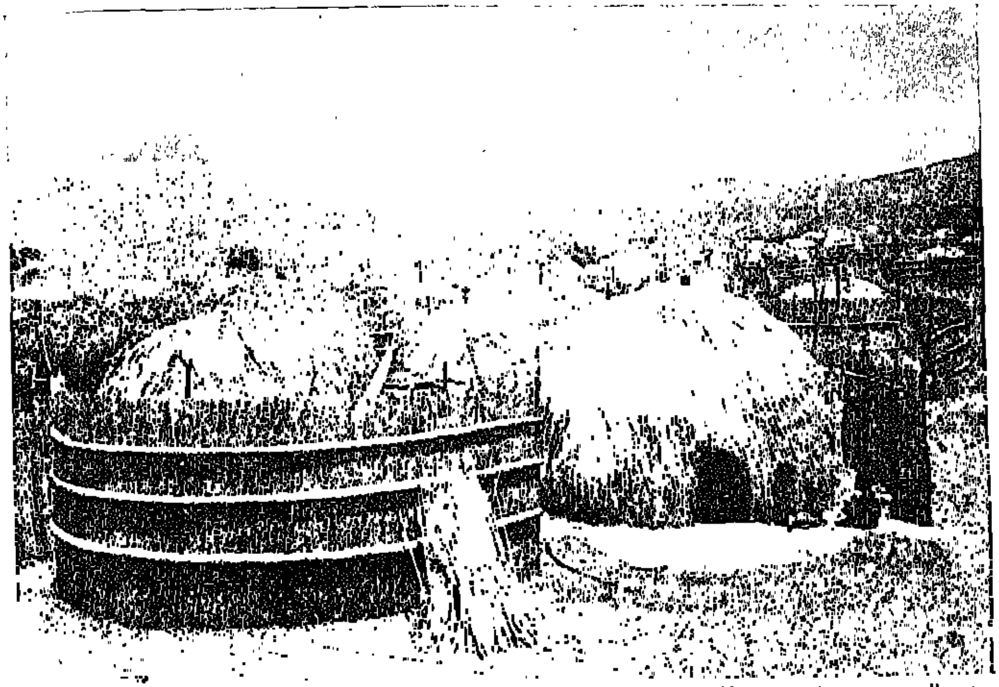

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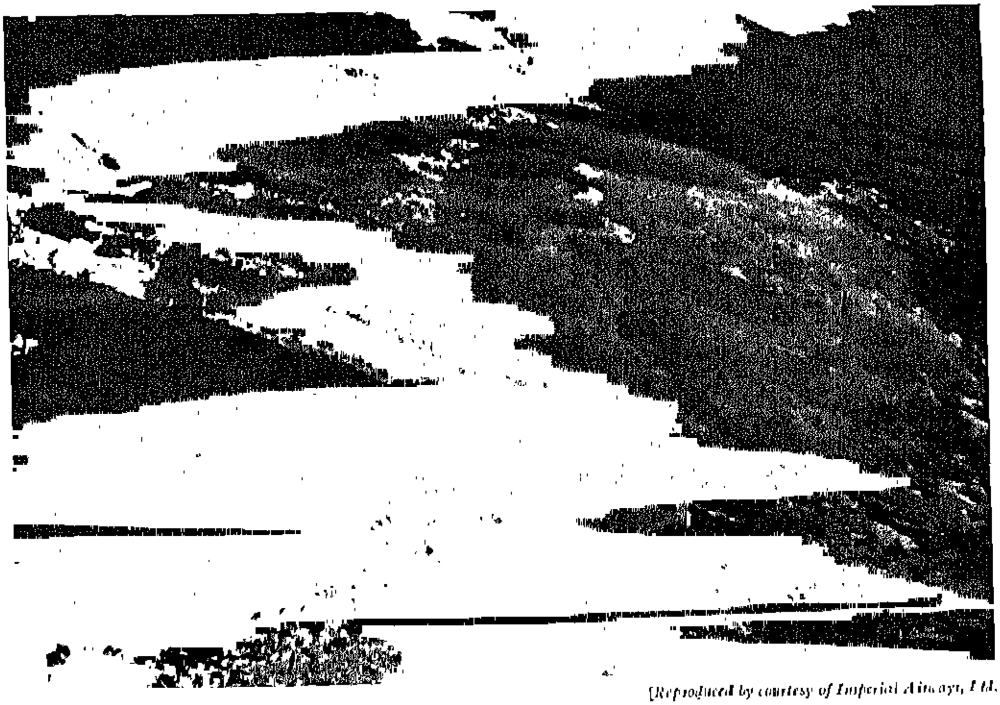
PLATE XIV. NATIVE QUEEN'S KRAAL, SWAZILAND



[*Reproduced by courtesy of Imperial Airways, Ltd.*

[illegible] A SWARM OF LOCUSTS FROM THE AIR

Despite the excellent coffee crops and the luxuriance of many parts of Brazil, vast areas remain almost untrodden by man. Transport is the greatest difficulty and beyond the establishment of a number of wide-spreading ranches roamed by semi-wild cattle, civilisation has made little headway.

The Australian savannah region has been the hope and despair of the colony for a hundred years. Millions of pounds have been spent in various efforts to establish plantations and cattle ranches but prosperity has not come, and to-day, in a great area of over 500,000 square miles, white people number only 4,000 amid 20,000 aborigines of very primitive character and 2,000 Chinese.

Some 900,000 cattle do exist, but the industry is not flourishing; even an experiment in farming using Chinese labour failed and then once again the savannah combination of climate, bad soil and insect pests has proved too strong for human ingenuity to overcome, Plate XV.

Memory work.—1. Savannahs in the growing season are like great, wild parks, although the temperature is much hotter than in England and the grass in many places twice the height of a man.

2. They lie within the tropics between the thick forests and the hot deserts.

3. There are usually two seasons only, rainy and dry. This accounts for the trees being in scattered clumps where water collects and stays for a long time.

4. The tsetse fly, white ant and locust are dreadful pests in this region.

5. The native people who live in these lands have very dark skins; in America there is a mixture of descendants of negro slaves and of ancient *Indians*, as they were called by the first discoverers.

6. Rhodesia contains the best savannah land for white people; its height makes it more comfortable for living.

7. The llanos and campos are American savannahs and are very little developed.

8. In Australia these lands are sometimes called *downs*. They are very thinly populated and not much farming can be done there.

Activities and exercises.—1. *Questions.* In the lessons in this region have these questions occurred to you? Write down the answers you know, leaving blank spaces for the others to be filled in as you find them out:

(*a*) These words are to be found in *King Solomon's Mines*, an adventure story concerning the African savannahs. What do they mean?

Impi, kraal, assegai, boma, induna, medicine man.

(*b*) The author is very well-known; who is he?

(*c*) Can you account for the vivid colour markings of savannah animals?

(*d*) You probably noticed that the birds of the region were largely of the swimming and wading type. Whereabouts would you find swimmers but not waders?

(*e*) What animal helps to keep down the termite pest? Give its correct name.

(*f*) The tsetse fly is dangerous to human beings as well as to certain animals. In what particular way?

(*g*) Why are the cattle half wild in the campos?

2. *Map work.*—For this section, your illustrated map will not contain as many products as others. Animals and birds can occupy more space. Use your own sketches where possible and include some typical scenery.

3. *Model.*—A complete kraal makes an excellent model for the collection of native houses. See the photograph, Plate XIV, for a guide. Notice the protection against lions.

4. *Lecturette.*—Many of you have seen the film *The Good Earth*. In this was a remarkable picture showing the ravages of locusts. Good subjects for an article or a lecturette are: Pests in the tropics or, The locusts have come. (Find out the modern methods of dealing with the creatures.)

5. *List.*—If the savannah lands were irrigated, what crops could be grown?

Make a list of them. Do not forget the plentiful rain in one season or the heat of the tropics.

LESSON UNIT VII—TROPICAL MONSOON LANDS

Introduction.—A study of this section may well be introduced by a little discussion on weather, leading to extraordinary conditions and then recalling the term *continental climate* with the reasons for its existence and the lands subject to it. Taking the great landmass of Asia as the best example, the next step will be to identify the climate with the development of high pressure systems in winter and low in summer. From lessons in their science course the children will have found out that air will

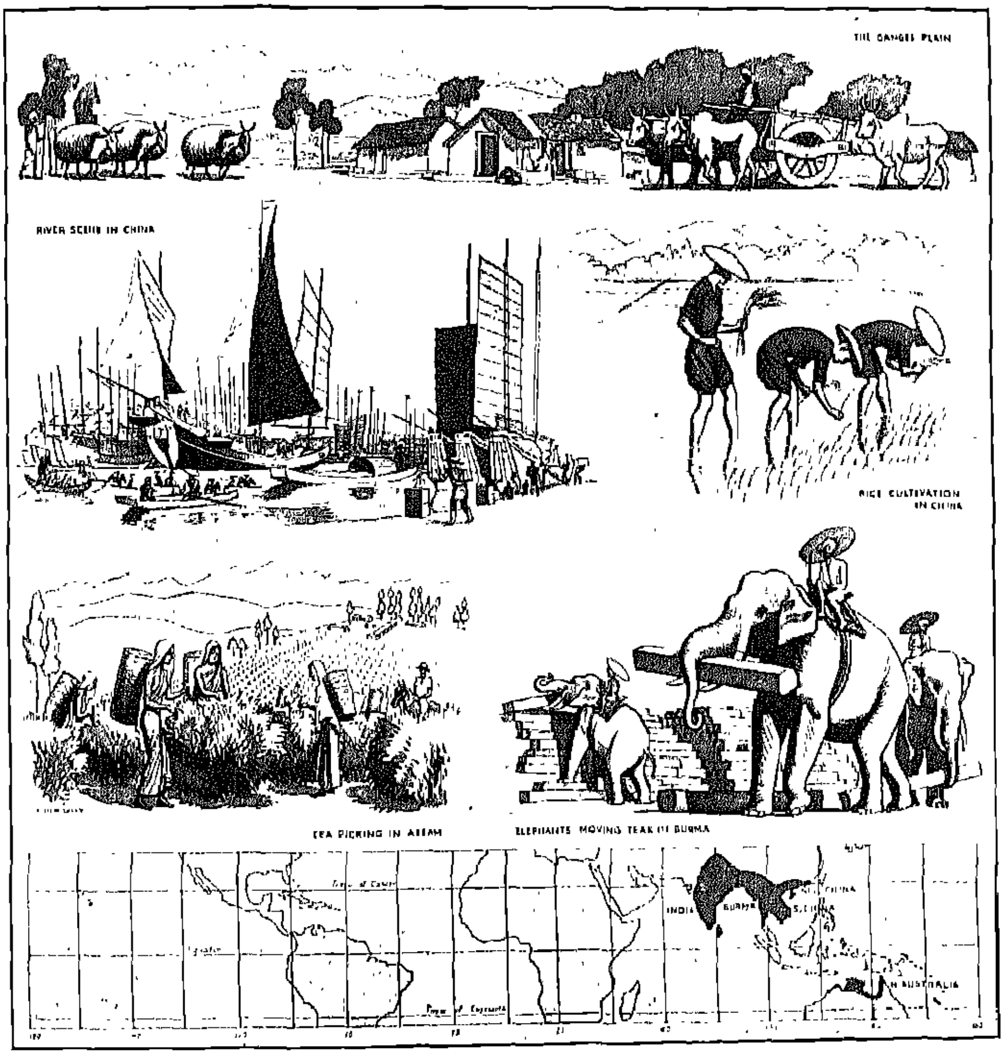


PLATE XVI. GEOGRAPHICAL REGIONS—TROPICAL MONSOON
(Class Picture No. 86 in the Portfolio.)

always flow from high pressure to low and accordingly, with such a vast area to consider, they will realise that the normal wind systems cannot come into effect. Consequently, special winds or *monsoons* come into being and those countries in whose path they lie will receive a very different treatment from others in the same latitudes which are not so affected.

A search for countries so far untouched in the grouping of natural regions will reveal the ones in question and a comparison with other lands in similar latitudes will convince the children that the choice is not merely an arbitrary arrangement.

Many topics can be chosen for these lessons for further development if desired. Thus the extraordinary productivity of the region could lead to its effect upon the rise of civilisation, the limits reached and why progress apparently stopped, to be renewed with the rise and influence of the western races. Again, the presence of great numbers of people might lead to enquiries into what happens when an area becomes over-populated.

In this case, the struggles of man to exist and the economy of nature and its effect upon man with regard to famine, disease, war, emigration are shown vividly in the many aspects of monsoon life.

Still further, the scanty requirements of the people with regard to food and clothing invite interesting comparisons with those of other natural regions and also in inquiring into how necessities are met by particular types of products.

Extent.—The chief regions experiencing a true hot monsoon type of climate are southern China, French Indo-China, Siam and India. Besides forming an area of particular natural vegetation, they are separated from the main continent by the great mountain chains of central Asia, a barrier to the western world that has influenced to a great degree in the past, the life and work of the people.

Monsoonal characteristics are also strongly marked in other regions such as north-western Australia, eastern Central Africa and parts of the southern Mississippi states, but the winds affecting these areas cannot be identified with the six months' flow backwards and forwards of the Asiatic monsoons, the regularity of which is seen in the name, derived from the Arabic word, *mausim*, meaning season, Plate XVI. In Australia, too, the effect upon animal and vegetable life is counteracted by other physical conditions, the result being a savannah type of land as seen in the previous lesson unit.

Climatic conditions.—In summer, owing to the extreme heat, the development of a low-pressure system over the interior of Asia causes winds to flow from the sea towards the land. They are thus moisture bearing, coming from the south west over India and south east over China. In winter the conditions are reversed. Extreme cold over the continent results in a high pressure area from which the winds blow towards the warmer air over the sea. Cold and dry, they come from the north west to China and the north east to India.

Three well-marked seasons can be identified in the hot monsoon region, a cool, dry period from November to March; a hot, dry period from March to May, and then five months of intermittent torrential downpour. Throughout, the temperature remains high, from 80° to 90° F. in summer and 70° F. in winter, varying according to the position of a place whether on the high land or in the low-lying plains, Fig. 15.

Rainfall is extremely varied, copious supplies being brought by the wet monsoon to the coasts and windward sides of mountain ranges with a gradual decrease inland. The heaviest falls occur in the Khasi hills overlooking the Bay of Bengal, the average yearly amount reaching 450 in. whilst as much as 905 in. were once recorded. On the other hand where the monsoon is least influenced by the sea as in the north-east corner of India the land in its natural form is nothing but desert.

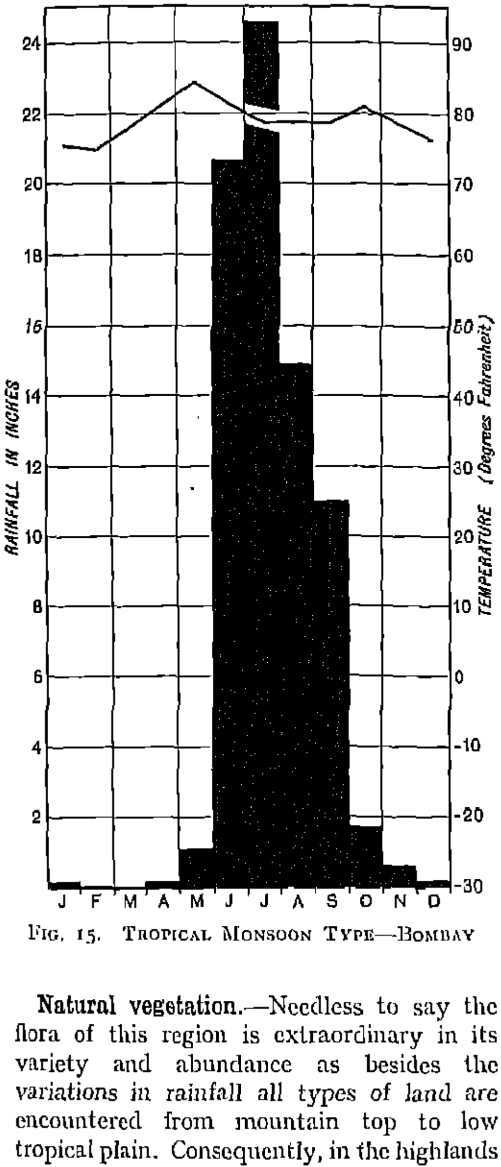


FIG. 15. TROPICAL MONSOON TYPE—BOMBAY

Natural vegetation.—Needless to say the flora of this region is extraordinary in its variety and abundance as besides the variations in rainfall all types of land are encountered from mountain top to low tropical plain. Consequently, in the highlands of India, holm oaks, and conifers such as cedars, cypresses and junipers are experienced, with magnolias, rhododendrons and many varieties of orchid as the Chinese contribution. In the drier plains herbaceous plants and thorny shrubs predominate and in the dense, sub-tropical forests the bamboo, various palms, the camphor and the tea tree, sandalwood, the banyan and the teak of Burma are among the best known.

Animal life.—Animals abound in the forests and include the elephant, rhinoceros, tiger, panther, hyena, monkey, buffalo, wild hog and many types of deer. Among the rocks, the black bear is frequent, crocodiles swarm in many rivers and deadly snakes appear even in gardens and houses. The birds are not so brilliantly coloured as in other tropical regions and besides small game innumerable, various species of vulture and eagle are outstanding.

Man and his work.—This region is densely populated with people mainly of two races, the Hindus of India, a branch of the white race; and the Mongolians, represented to the greatest extent by the Chinese. Both are members of ancient civilisations and despite years of European influence they still retain the main characteristics of their ancestors. The great masses of the people are agriculturists, bound intimately with the cultivation of rice, the important cereal adapted to swamp conditions and eminently suitable as a tropical food (see Class Picture No. 86 and Plate XVIII).

The Chinese.—These people represented by the coolie or labourer are a peaceful race, renowned for their qualities of endurance, thrift, courage and contempt of death. They toil laboriously, are content with a low standard of living and have a great reverence for the aged and the ancestral shrine.

Vast numbers of houses are built of mud with straw roofs; others of bamboo. They have only one room in which live the whole family together with all the pigs that can be got in. Rice, pork, poultry and vegetables form the chief food, but milk is not used. Tea is the universal drink. The bamboo is largely used for house building, and the tender shoots are eaten as a vegetable.

Along the lower courses of the main rivers, hundreds of thousands of Chinese spend their whole lives in sampans, or house boats, engaged in fishing or trade. Everything they

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PLATE XVII. RIVER SCENE AT BANGKOK

possess is on the boat, even including fowls and sometimes pigs, which are hung in cages on the sides of the vessels.

Internal trade is chiefly carried on by means of numerous canals and navigable rivers. Roads are relatively of little importance where the bulk of the people are engaged in growing food for their own use; few are metalled or paved, and goods are mainly carried on pack animals. Wheelbarrows, with the wheel in the centre of the barrow, are largely used both for passengers and goods.

Government was, of course, necessary from the first, for when people are so dependent upon water supply the latter has to be very carefully regulated, otherwise disaster would overtake large areas. The tendency has been to weed out by punishment all those of individualistic temperament and the general result is an orderly population patiently submissive to authority. This in one way has led, particularly in recent years, to constant civil wars, one leader after another endeavouring to impose his method of ruling to replace the monarchical system now abolished.

The Hindus.—As in China so in India a large majority of the people are occupied on the land, the peasant farmer or *ryot* being self-dependent and hard-working but very poor. The most fertile parts of India, the flood plains and deltas of the rivers, are densely populated by native Hindus, who are, because of their religion, mostly vegetarians, living mainly on rice or millet, pulses, and the fruit of the mango tree. The people live in countless villages in tiny houses of clay, each household patiently and carefully cultivating its own rice or millet patch. Some of the natives are noted for silver filigree work, ivory carving, weaving

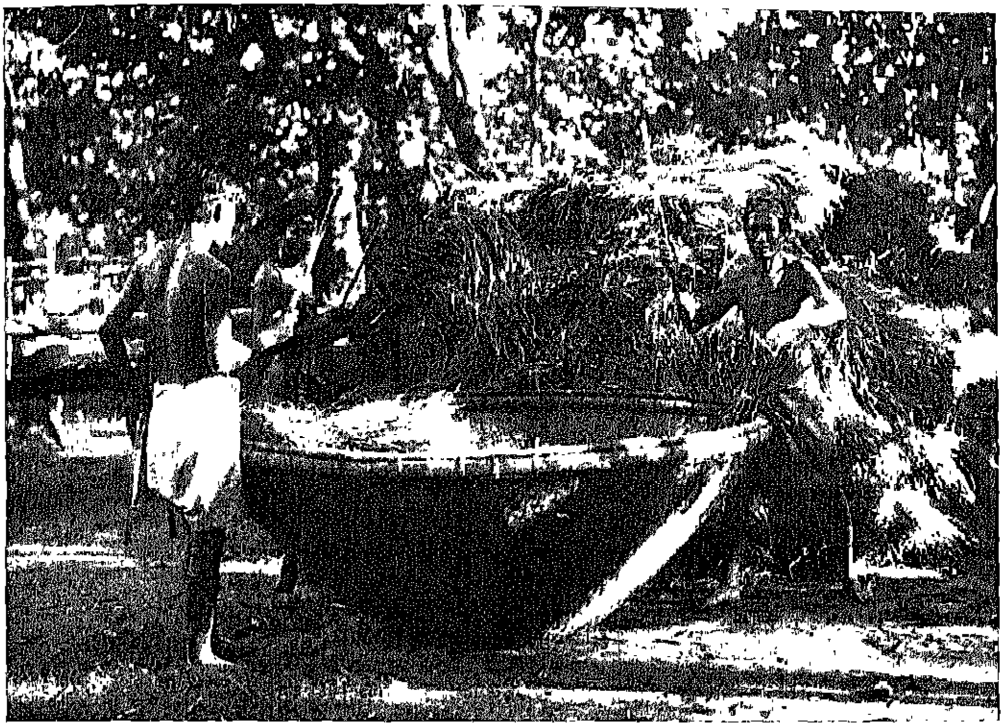

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PLATE XVIII. RICE THRESHING, BANGKOK

and spinning. Vast numbers of these peasants scarcely ever move more than a few miles from their native villages, and they show little interest in anything that is taking place in other parts of the world. A certain portion of their clothing material of cotton and silk goods is manufactured in India, but the larger part is imported. Metal goods, such as agricultural implements, bells, brazen pots and ornaments, are made in every village. The slow-moving, patient bullock is their beast of burden, and there are more of these animals in India than in any other country in the world.

Under British government, wonderful roads, railways and irrigation works have been constructed. Not more than 10 per cent of the natives can read or write, but many Indians are highly educated and a great number have responsible positions in the government of the Empire.

The well-known caste system of India is a Hindu institution, in which were four great castes which originated as class distinctions. They were the Brahmins, or priestly and literary classes; the fighting castes; the trading castes, and the artisans. These now have innumerable subdivisions, the untouchables being those who are outside the caste system altogether. Such a system cuts across all sorts of institutions. Certain types of work can be done only by certain groups of people: members of higher castes cannot come in contact with members of lower castes in any way. All this severely restricts mobility of labour, and many professions are barred to people on grounds of ceremonial purity. The non-Hindu population which includes seventy million Mohammedans and a few million Christians and other sects are not influenced to any great extent by this system, but they are greatly out-numbered, as the total population of India amounts to approximately three hundred and fifty millions.

There are, of course, a very large number of other crops cultivated in monsoon regions besides rice. Sugar, tea, cotton, oil-seeds such as castor and ground nut, hemp, jute, tobacco, indigo and millets are all important, whilst in certain parts, such as the upper Ganges valley and the Punjab, wheat and barley are grown as winter crops, being sown at the end of the rainy season. From the region of the hot forests come rubber, cinchona, coconuts, areca nuts, coffee and pepper and in the deciduous areas, apples, pears, peaches and apricots are grown. Lastly, the vast areas of uncleared forest in monsoon lands are by no means unproductive. Many valuable woods are obtained, teak being in greatest demand owing to its powers of resistance to water and insects. As this wood will not float in water unless quite dry, the trees are killed by *girdling* or making deep cuts in the trunk and then left for two or three seasons before felling. Elephants serve as excellent and economical carriers between forest and river; their food supply is present on the spot and they can also operate in scattered places where tractors cannot penetrate.

Memory work.—1. The monsoons are the special winds that blow over the south-eastern part of Asia.

2. They are caused by the great heat in summer and the bitter cold in winter, of the middle of the continent.

3. The summer monsoon is wet because it comes from the sea to the land and the winter monsoon is dry for the opposite reason.

4. In this region, hot swamps, fertile plain, and desert can be found. Thus a great variety of products may be grown.

5. The one great product that marks the monsoon type of region is rice. Millet takes the place of rice in poorer soils.

6. The peoples of the region, mainly Hindus and Chinese, were civilised long before we were in Great Britain. Where food was plentiful people developed very quickly.

7. They are notable for their slow, patient toil. Time appears to be of no account. Examples can be seen in the very old-fashioned methods of farming and in the minute detail of their craft work.

Activities and exercises.—1. *Reference work*:

(*a*) What is the Great Wall of China and what was its purpose?

(*b*) Where are the *treaty* ports in China?

(*c*) When did the monsoon last fail in India and with what results?

(*d*) What great irrigation works now bring water to the region of the Thar desert?

(*e*) Bristles used to be an important export from China. What are they and what substitute is now largely used in their place?

(*f*) How long does it take for letters to reach Burma and Hong Kong, by water and also by air mail?

(*g*) Which is the most notable shipping line to the far east?

(*h*) Why are turbans suitable for the Indian climate?

2. *Graphs and coloured diagrams* are great aids in telling facts at a glance. Large ones, well printed, can be both decorative and useful for a lecture or for exhibition. Here are some suggestions. Show in columns the amounts obtained, in order, of the chief monsoon products (details are found in Whitaker's Almanac); the difference in population according to the type of land, desert, plain, swamp, etc.; the proportions of land under mountain, forest, jungle, grass, etc. A diagram could be also made showing the range of vegetation from mountain top to plain. (A poem to be read in this respect —*The Overland Mail* by Rudyard Kipling.)

3. *For handwork*, some good subjects are: a sampan, woven wickerwork baskets and panniers for tea gathering or for hanging on ponies, kites painted with a bold figure, and if a school party in character is projected, the dress of a Chinese coolie, an Indian lady or an Indian fakir are very picturesque and easily made.

4. *Written work.*—If you can write vivid descriptions try paragraphs on these subjects; it may help if you look at a picture of each first: A Chinese Home on a Sampan; Night-time in the Jungle; Teak Cutting in Burma; Before and After the Monsoon.

5. *Silhouettes* of typical animals mounted on a coloured background make a very attractive frieze.

6. *Maps.*—Remember to keep up to date maps and other exercises suggested earlier.

LESSON UNIT VIII—EQUATORIAL FORESTS

Introduction.—Most children love the mystery and the strange forms of life pre-

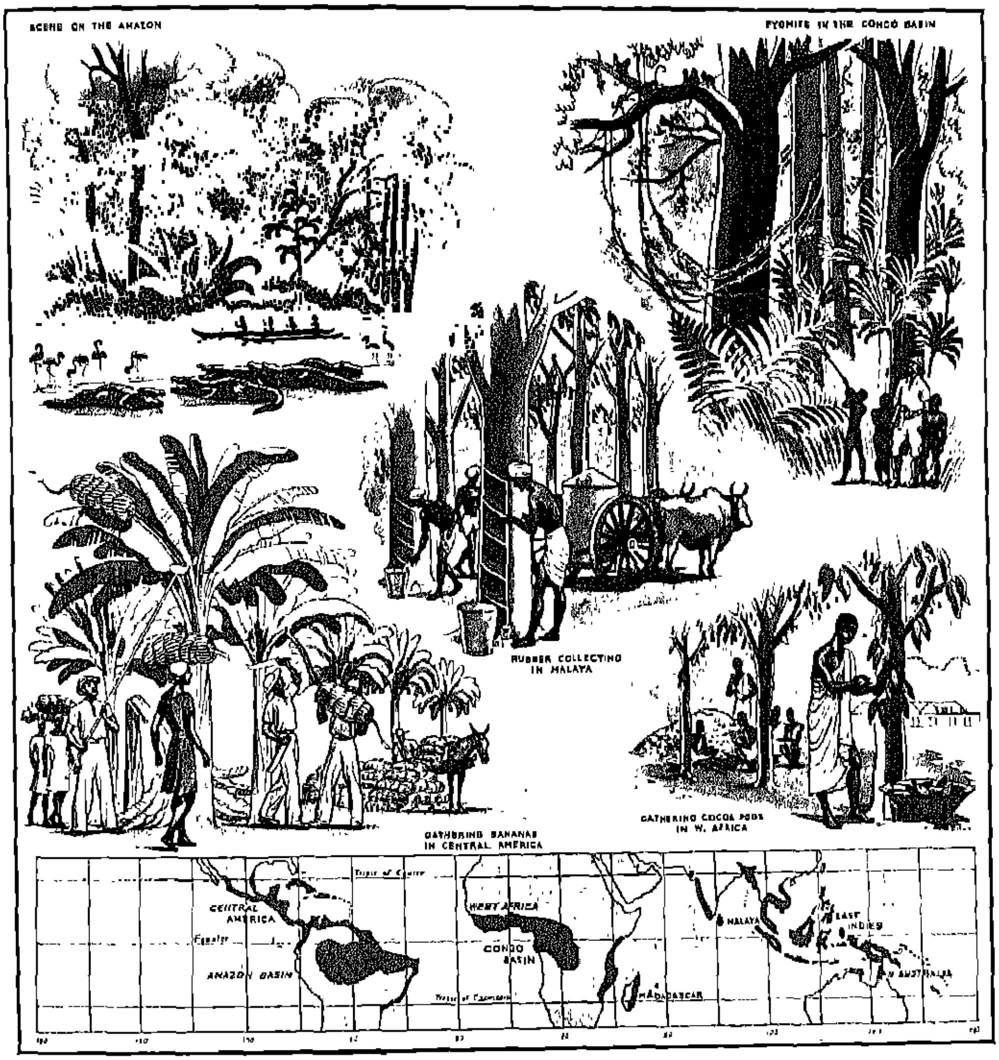


Plate XIX. Geographical Regions—Tropical Forest
(Class Picture No. 87 in the Portfolio.)

vailing in the tropical forests and consequently, although the usual study may be found desirable, especially of the fringes and those parts such as the East Indies and southern Malaya where they have become accessible to man, an opportunity is given if wished for the development of many interesting topics.

By following the difficulties of the construction of the Panama Canal, a vivid picture can be given of equatorial rapidity of growth and impenetrability. Or again, exploration may find particular favour and then the tremendous work of Mungo Park, Livingstone and Stanley in Africa and the various American expeditions into the depths of the Amazon forests would provide all the material desired. The disastrous one in 1925 of the British explorer, Colonel Fawcett, might also be mentioned.

Still further, it may be thought opportune to treat forests as a study in themselves. In this case, some interesting points for development are as follows:—(1) *Forests as a barrier;* they limited early man's distribution over the earth and acted as a bar to colonisation and tribal movements; (2) *forests as cultural influences;* religion and philosophy have been greatly affected as seen in the worship or folklore of the Hindus, the North American Indians, and the Slavonic races, and art, as seen in the reproduction of forest forms; (3) *forests as character forming;* man first dominated by forests, found the means to subdue them and a breed of hardy pioneers developed as seen in the Anglo-Saxon races, the early settlers in America and the Russians in Siberia; (4) *physical effects of forests;* temperature, moisture and the preservation of the soil from erosion offer points of study; (5) *forest woods;* interesting collections can be made and compared; thus, temperate soft woods; e.g., pine, fir, larch, cedar; temperate hard woods; e.g., oak, birch, poplar, maple; and tropical hard woods; e.g., mahogany, teak, ebony and rosewood; (6) *forestry as a science;* the desolation caused in denuded areas can be traced and the work of restoration and preservation of desired species can be studied. Both in Europe and the U.S.A. a net of "forest experiment" stations have been established and every civilised country has at least one forest school (in U.S.A. there are about 25); (7) *forests as sources of health;* besides the purity of the air, the presence of ozone and the reduced bacteria within the forests, compared with conditions on the outskirts, it has been claimed in India and in Alsace that they provide immunity from cholera in the inhabitants of the surrounding villages. Barriers are also provided against prevailing cold and humid winds. Lastly, where highways have made them accessible to great numbers of people, it is claimed that the recreational value of forests is of greater importance than the raw materials they provide.

Equatorial forests (extent and climatic conditions).—These forests exist on the low ground only on, and immediately north and south of, the equator, the chief areas being the Amazon lowlands, the West African coastlands, the Congo basin, southern Malaya and the East Indies, Plate XIX. Their presence is due to the extraordinary prevailing conditions of heat and rainfall.

Temperature is uniformly high throughout the year with two periods of extreme heat round about the equinoxes (March and September), partially counteracted by the usual cooling effect of rain in hot climates. Rain is persistent, occurring about the same time every afternoon and caused by the uprising currents of air, created by the fierce heat of the sun, passing into higher and cooler atmospheres. Whenever the heating effect is strongest then it is followed by the heaviest rainfall, Fig. 16.

Natural vegetation.—Numerous descriptions have been written of the extraordinary rapidity and profuseness of growth engendered by the climate of this region. Outstanding points may be summarised as follows:—(1) The struggling masses of various growths give a general effect of the forest

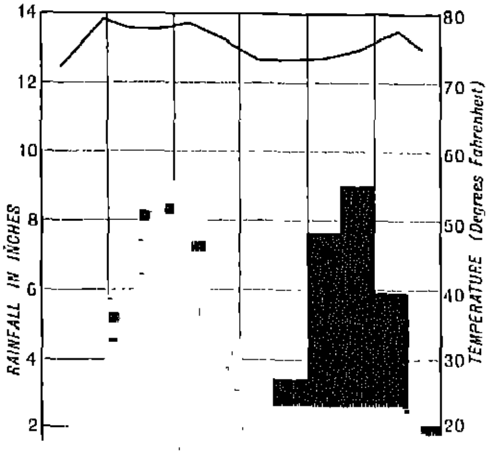


FIG. 16. EQUATORIAL TYPE—YAUNDE

rising in storeys from ground level to overhanging canopy. (2) In the struggle for light and air the trees are branchless to a great height, the tops becoming a tangled confusion locked by creepers. (3) Prop roots and buttressed trunks are common features in the trees. (4) Despite the existence of scores of species, individual types are widely separated. (In a half-mile square, 117 different trees were found.) (5) There is no general leaf fall, all stages of annual growth existing together. (6) Forest giants of 200 ft. are rare (silk cotton, Brazil nut, Brazilian cow tree), the main tree height being about 100 ft. (7) Where sunlight can penetrate, the undergrowth is exceedingly dense and almost impenetrable.

Besides those already mentioned, among the economic trees and plants indigenous to this region are various palms, cinchona, cacao, rubber, cassava, ipecacuanha, cocoa, sarsaparilla, anatta, balata, pineapple, calabash, guava and tonka bean.

Animal life.—Mainly owing to the denseness of the undergrowth and the absence of light and air, animals are not abundant in the equatorial forest. Members of the cat family such as the jaguar, puma and ocelot are found in the Amazon forest together with lesser-known creatures such as the armadillo, tapir, sloth, porcupine and capybara, whilst in the more open parts of the Congo region there are rhinoceroses, wart-hogs and various types of forest antelopes. On the other hand monkeys and birds flock in the tree tops, parakeets being more common than the sparrow in Great Britain, and the humid atmosphere and numerous waterways give rise to hosts of reptiles and insects. The last-named, though miracles of flashing beauty, render both day and night hideous by screeches, cries and innumerable devices of biting, stinging and destroying.

Native peoples.—The abnormal conditions prevailing in the tropical forests have given little scope for human development and the natives are still either hunters or very primitive agriculturists. A typical example is furnished by the pygmies of the eastern Congo region. These little yellowish-brown coloured people, who average about 4 ft. 7 in. in height, are an intelligent race despite the simian appearance given by their flat noses, long arms, large flat feet and hairy bodies. They wear little clothing, although they occasionally imitate their neighbours in the use of ornaments, dress, scarification, filing of teeth and other aids to personal beauty. For dwellings they erect low temporary shelters of sticks covered with large leaves, although now and then a hunting group will combine to put together a number of more substantial oval huts as their headquarters.

With regard to social life, they generally wander about in small groups of two or three families. They are very musical and spend a great deal of time dancing, although other forms of art are undeveloped. Their language is unknown and appears to consist of squeaks, grunts and gestures. Unlike most primitive peoples they do not seem to have any definite religion, although their burial customs indicate a belief in a future life.

It is often supposed that there is an abundance of food in equatorial regions.

Actually the natives can seldom obtain sufficient from the surrounding vegetation since most of the edible fruits and nuts are far above them. It is also impossible to raise domestic animals and therefore their main source of livelihood is game together with a little manioc, fruit and honey.

Perhaps because of the uncertainty of their food supply the pygmies are capable of consuming vast quantities of food at a time, and then of subsisting without nourishment for a considerable period.

Hunting is made difficult by the dim light of the forest, but the pygmies have risen above handicaps and are expert hunters and trappers. Their chief weapons are the bow and the blow-pipe and, being expert in the use of poisons, as are many other forest peoples, the tips of their arrows are often poisoned. Larger animals such as elephants, forest buffaloes, hogs and antelopes are generally trapped by various methods.

With regard to the agricultural tribes, though primitive they are more settled and generally live together in larger groups. Sometimes, as seen in the Papuans of New Guinea, more than a hundred people will live in an immense communal house some 500 to 700 ft. in length. Compartments are constructed for the various families whilst a particular side is retained for the chief and his family.

The chief food is manioc, supplemented with yams, sweet potatoes, fish, game and insects. Some tribes fish from canoes, some go night fishing with torches and spears and others dam a river and stupefy the fish with a form of poison, the root of a milletia.

Cultivation is extremely primitive and difficult. The great hard-wooded trees are felled, left to dry and finally burnt out. Manioc is then planted between the tree stumps by the simple process of inserting the tubers in holes made with a digging stick. When, after a year or two, the clearing becomes completely choked with weeds and bush, the group moves on to another part of the forest and begins to clear another space. Incidentally the bush which springs up in deserted clearings is far denser than the original forest and much more difficult to cut down.

Social life has reached a higher stage of development amongst the agricultural tribes than amongst the purely hunting tribes, and chiefs direct the activities of various communities. Arts such as weaving, pottery, wood carving and bark-cloth making have also been developed to a fairly high degree.

Scarcity of food, however, seems to be responsible for the cannibalism which is prevalent amongst many tribes, and human flesh has much the same value as animal flesh. It is a common belief that the virtues of the person eaten are assimilated by the consumer. Famine has also led to slavery, and in times of scarcity the people often sell their children as slaves in order to preserve themselves.

The forest surroundings have created in the inhabitants a suspicious, wary and dishonest nature. Their whole religion is one of fear and superstition; witchcraft is everywhere, and the people are hampered by numerous taboos.

Modern development.—It can be seen from the foregoing that the natives can be of little assistance in the general development of the equatorial forests. In the East Indies and Malaya, however, vast changes have taken place and the region is one of the most densely populated and productive areas of the world. Among the factors that have contributed to this are:

(*a*) Accessibility, the land being composed mainly of peninsulas and islands.

(*b*) The fertility of the volcanic soil.

(*c*) The presence within reasonable distance of large reservoirs of native labour, in India and China.

(*d*) The existence of a fair proportion of high ground which provides a base for white settlement.

Over 90 per cent of the world's rubber supply comes from this region whilst the cultivation of sugar, coffee, rice, cinchona, coca, the sago, coconut and oil palm, tea, maize, spices such as pepper, nutmeg and cloves and a host of other tropical products has reached a high state of development.

The importance of this area indicates the possibilities of an equatorial region. At present the others are mainly notable because they have introduced the world to various valuable products. It is almost certain that many others exist quite unsuspected at present, but it seems likely that for some years most parts of the great equatorial forest will remain undisturbed, since vast supplies of capital and labour will have to be concentrated on them before their possibilities can be fully realised.

Memory work.—1. The equatorial forests exist on the low land around the equator where the sun's rays are most direct and hottest.

2. Rain is plentiful at all times as the rising, moist, hot air is condensed when it comes to the colder upper air.

3. In the gloom and tremendous struggle to reach light and air, the trees form no branches until high up and then a canopy of foliage develops where the birds and monkeys live.

4. The strange thing is, that there are hundreds of different species of growth but very few of the same sort together.

5. Animals are few, but great reptiles and insects are very plentiful in the marshy undergrowth where the sun breaks through.

6. Native peoples are very backward as most are hunters and collectors.

7. People can easily starve in the equatorial forests as the countless fruits and nuts are not within reach.

8. All the natives are not pygmies. This is one reason why it is not thought that the pygmies are naturally dwarfed to be able to make their way through the dense undergrowth.

9. In the East Indies and Malaya this region has come under white influence and is highly cultivated.

10. The hallmarks of the equatorial forest are the coconut palm and the rubber tree.

Activities and exercises.—1. *Questions* for reference work and short answers:

(*a*) Why does rain warm cold atmospheres and cool hot ones?

(*b*) What notable trees have prop roots and why?

(*c*) Why are the shells of coconuts and brazil nuts so exceedingly hard?

(*d*) What is obtained from the following:—Cinchona, coca, the silk cotton tree, tonka beans, anatta or arnotto; and what is balata, sago, arrowroot, sarsaparilla, ipecacuanha?

(*e*) Give two reasons why the rubber trade from the Amazon forests is fast dying out.

(*f*) What are fireflies and how is their light produced?

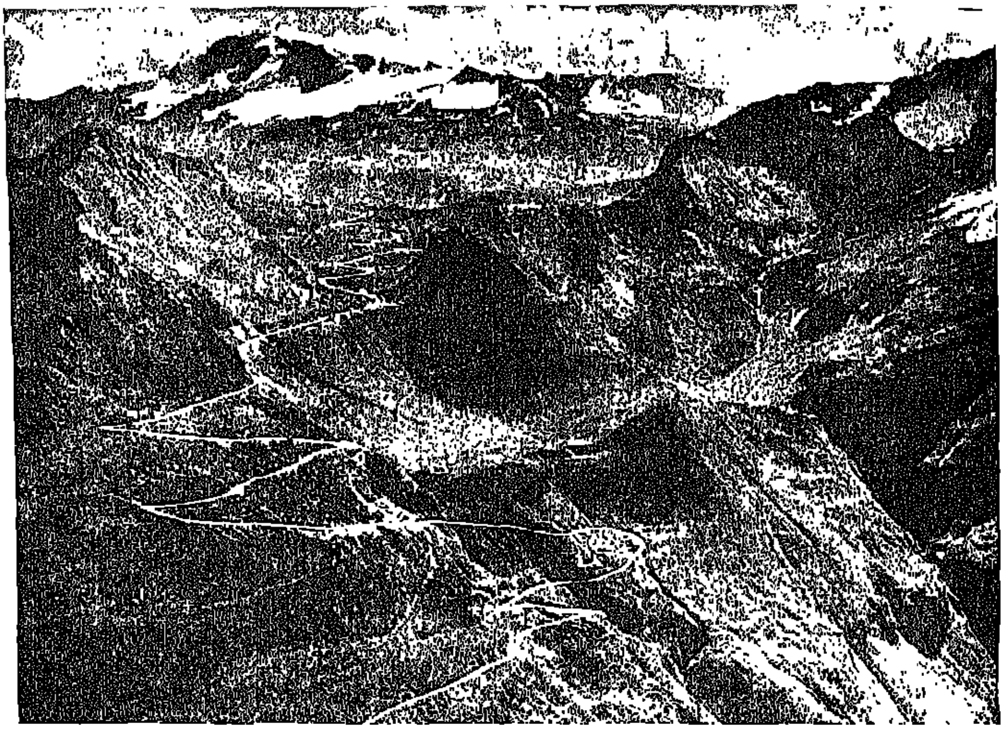
(*g*) Name three great reptiles of the equatorial forest region.

2. *Chart.*—In Lesson Unit V, a chart was suggested showing the main product of each region. Add to this the suitable ones for the monsoon lands and the equatorial forests.

3. *A special map* for this region should be constructed showing very plainly how the parts in Asia have developed far more than the others. Trade routes should be shown and, if a large map, products in coloured sketches. A column graph, comparing the output of rubber, coffee, sugar, etc., with other parts of the world, would be very useful. (The *Statesman's Year Book*, found in every public library, gives all details of these.)

4. *Handicraft.*—Some very interesting subjects for handicraft are: the *dobbos* or tree houses of the Papuans, the huge communal house (*morong*) with a thatched, boat-shaped roof, or the single house built upon piles. Native boats too are easily made; they are usually dug-outs with or without outriggers or the *lakatoi* which is made of several dug-outs lashed together, 50 ft. long and 24 ft. wide. The latter are fitted with two masts and mat sails curiously fashioned.

5. *Written work.*—(*a*) Work up all details for an essay on the value of the coconut palm to mankind. You will be surprised to find how many things you use daily are



[*Reproduced by courtesy of Imperial Airways, Ltd.*

PLATE XX. MOUNTAINS NEAR SALZBURG, AUSTRIA (NOTE THE ROAD)

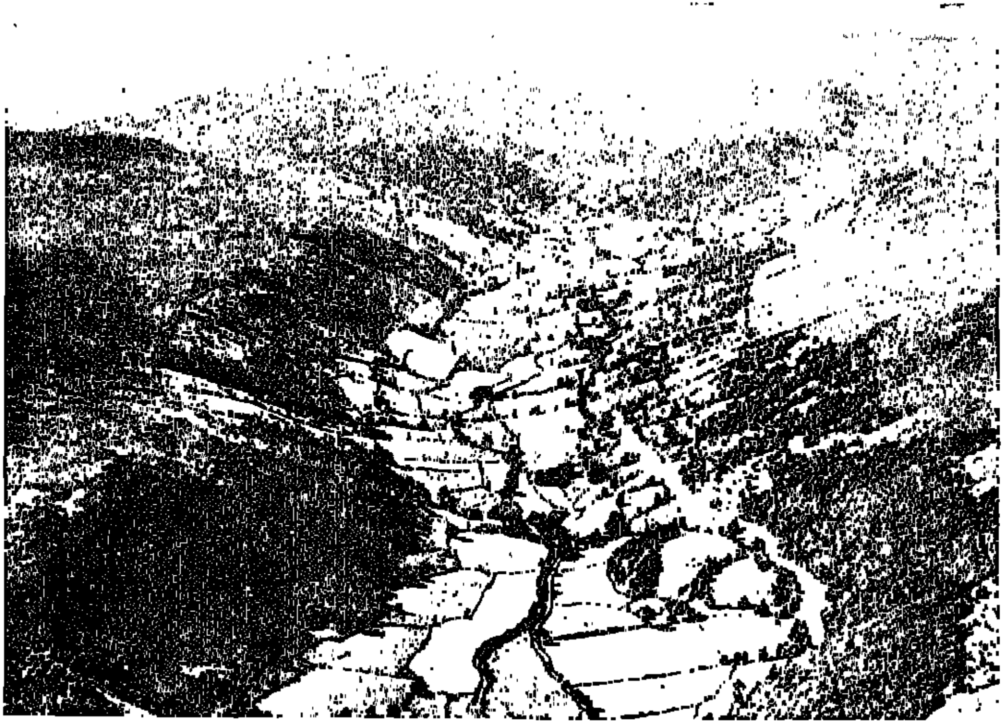
connected with this well-known tree. (*b*) Write an essay on *Native Habits of Decoration.*

6. *Diagram.*—A headline in a daily paper was, "Singapore, the Gibraltar of the Far East." Explain this by means of a diagram in colour. Use no words excepting place names where necessary.

LESSON UNIT IX—MOUNTAIN, PLAIN AND COAST

Introduction.—At various stages in the broad survey of the world, reference is made to highlands and coastal belts as differing in character from the general aspects of the region under study. This at once suggests a further topic. Just as man's life is affected by climate, so is the latter by altitude. Consequently, whatever the region in each case, plainsman, hillsman and coastal dweller cannot conform to a common mode of life, and accordingly a general survey of the conditions imposed by mountain, plain and coast may be very helpful at this stage. It might be considered desirable to undertake this comparison earlier and then the information gathered could be applied later at opportune moments. The topic could be made use of directly, in the additional work connected with local geography, for from the particular details of his own surroundings a child could proceed more easily to other conditions and especially so if further assistance were forthcoming through school journeys or holidays away from home.

More detailed study of the physical aspects of each section appears later in the course. At the moment it may be considered enough for children at this age to be able to observe broad effects arising out of well-known facts.



[Photo: Aerofilms, Ltd.

PLATE XXI. LONG SLEDDALE VALLEY, WESTMORLAND (NOTE THE U CAUSED BY ICE ACTION)

Mountain.—In mountainous regions, descending from summit to plain, a great variety of climatic changes is experienced (Fig. 17) and accordingly it will be necessary to take each division separately.

1. *The peak lands* are generally covered all the year round with snow. This is a land of deep crevasses, of rocky precipitous slopes where nothing will grow and consequently where there is no animal life. Some of these desolate areas such as the Himalayas have not yet been thoroughly explored, for even surveys made by aeroplanes are difficult and dangerous to undertake.

The snow-clad peaks of some lower ranges are often used as playgrounds for holiday makers. Switzerland is often called "Europe's playground" for here people flock at certain seasons of the year to enjoy the ski-ing and tobogganing.

Glaciers, or rivers of ice, abound in this region, Plate XXII. These move slowly downwards, the tremendous masses of ice known as *névés* or *firns* scooping out valleys and carrying along great boulders and quantities of other material, Plate XXI. At their termini lakes may be formed, rivers begun, or, as in the polar regions, when they come to the sea great sections may break off to float away as icebergs. The material carried may later be deposited when the ice melts inland as a *moraine* or else in the sea, forming such features as the Grand Banks off Newfoundland.

Many thousands of years ago occurred the glacial epoch when an immense ice-sheet spread from the North Pole and covered the land as far south as the junction of the Mississippi and the Missouri. As a result of the pressure of the immense weight of ice, which was over a mile thick in parts, tops of mountains were rounded, sections of the continents were depressed, the higher parts remaining as islands, as in the case of the British Isles, and great lakes were hollowed out. An excellent example of the latter is to be found in the Great Lake system of North America.

2. *The barren region.*—This cold and bleak section of barren rocks is useless for agriculture and is sparsely populated. The tremendous tasks of road and rail construction amongst the precipitous crags and deep valleys are seldom undertaken unless there is a need for communication between districts separated by the mountains. Then passes, or a sequence of well-defined depressions between the peaks, are chosen for the purpose, Plate XX. Thus, in the north east of India lies the Khyber Pass, the "Gateway to India," a rough stony track between overhanging cliffs that, after heavy rains, becomes a foaming torrent of water which may carry away animals and men. In England an excellent example of a mountain pass is the Kirkstone Pass in the Lake District which permits of communication between Patterdale, at the southern extremity of Lake Ullswater, and Windermere.

Mining is the chief industry of this region owing to the presence of metallic deposits mainly in the older rock formations. Metals were formed deep below the earth's surface, and where the rocks have become uplifted and then worn by weathering or water action they have come within reach. Even then the industry is by no means certain, for it is dependent upon:

(*a*) *The cost of working.*—Deep shafts necessitated sometimes by a covering of newer deposits on the rock require elaborate attention to haulage and ventilation needs, etc. This may make the work unprofitable excepting with the more valuable metals.

(*b*) *The extent of the deposit.*—However rich, and despite modern devices for extracting the mineral from very poor ore, this must become exhausted eventually, and consequently all operations are of a transient nature.

(*c*) *Demand and transport.*—These are very important and many valuable deposits exist that are unworkable owing to the cost of transport to a district where smelting materials are available or where there is a demand for the pure metal. England is very fortunate in that coal and iron are found together in large quantities. A good example can be seen in the north west of the county

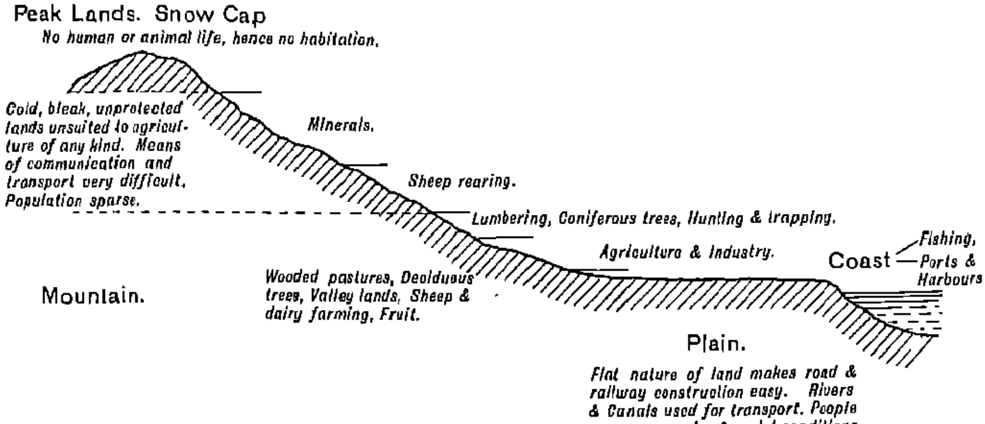
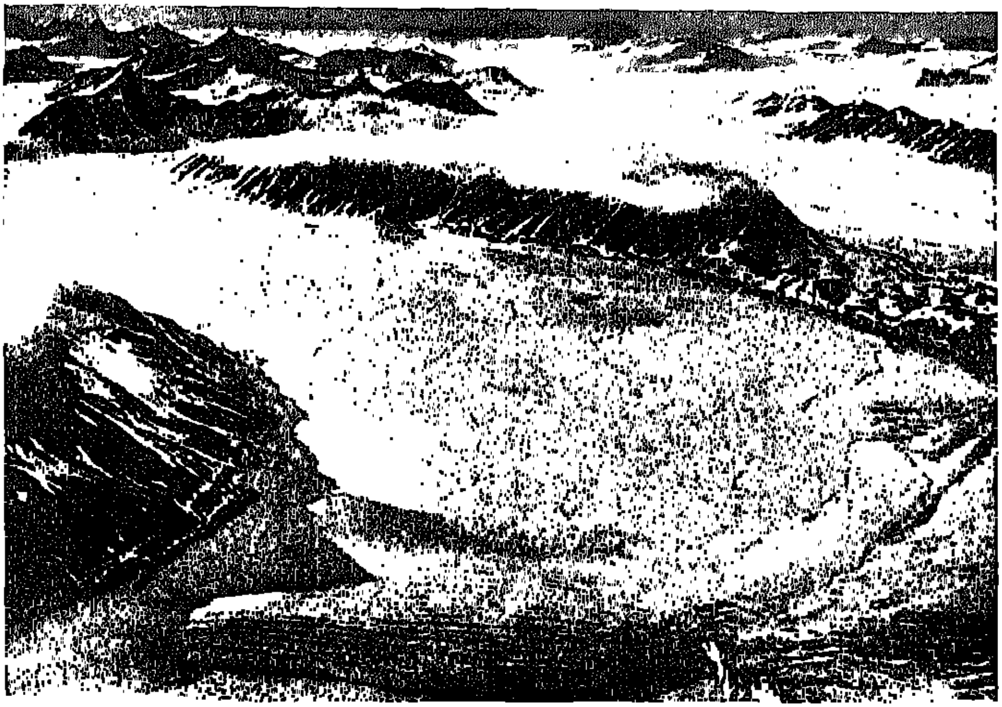

Peak Lands. Snow Cap
No human or animal life, hence no habitation.
Cold, bleak, unprotected lands unsuited to agriculture of any kind. Means of communication and transport very difficult. Population sparse.
Minerals.
Sheep rearing.
Lumbering, Coniferous trees, Hunting & trapping.
Agriculture & Industry.
Coast
Fishing,
Ports & Harbours
Mountain.
Wooded pastures, Deciduous trees, Valley lands, Sheep & dairy farming, Fruit.
Plain.
Flat nature of land makes road & railway construction easy. Rivers & Canals used for transport. People more progressive & social conditions more advanced. Dense population. Soil rich & more abundant.

FIG. 17. MOUNTAIN, PLAIN AND COAST



[*Photo: Aerofilms, Ltd.*

PLATE XXII. NORWAY—THE ESMARK AND NANSEN GLACIERS

of Durham. Here is found iron ore in large quantities which is smelted at Consett, whilst coal is plentiful within a few miles of the furnaces. There is also an ever-increasing demand for the metal at the Tyneside and Wearside steel-works and ship-building yards, and transport to these places is very easy.

China, on the other hand, provides an example of very poor development of mineral resources. Although possessing exceedingly rich deposits, the people have not kept pace with the advances of the white races in engineering and chemistry during the last hundred years and accordingly lack of demand has occasioned no desire to make full use of the metals available.

An interesting example of the rise and development of a particular branch of mining is seen in the growth of Johannesburg, the chief city in South Africa and the third largest in the whole continent. Johannesburg is situated on a plateau nearly 6,000 ft. above sea level where it is crossed by the Witwatersrand, or *ridge of white waters.* Gold was discovered here in 1886 and the immediate result was a great influx of people who suffered great hardships in the almost barren districts round about the rivers. Every road from the ports, even from Cape Town 950 miles away, became crowded with bullock waggons conveying stores and supplies. Railways were built as soon as possible to link the mines with the ports and to-day all the chief roads, railways and air routes converge upon the gold fields.

The gold-bearing rocks dip below the *surface for several thousand feet,* the vein varying in thickness from a few inches to 20 ft. This golden thread runs for over sixty miles across the country, and over half the world's supply is obtained from it.

To recover an ounce of gold, about three and a half tons of rock have to be blasted, raised to the surface, crushed, and treated with chemicals, and there is only a profit of about eight shillings on each ton of rock treated. Some of this ore is mined at a depth of 7,300 ft. in the Village Deep mine—the deepest in the world. The gold is then sent to the Rand refinery at Germiston where it is cast into ingots for shipment.

Johannesburg itself is a city of many fine buildings and magnificent streets, the only drab part being the mining area with its long rows of corrugated iron structures.

(*d*) *The pastoral slopes.*—Below the barren rocks extends a belt of sloping grassland over which herding is carried on extensively. This demands the constant co-operation of many people who accordingly become better organised and develop higher social and political communities. Drought, cold and disease among the flocks frequently render the occupation precarious, but the people are exceedingly hardy and manage to survive privations.

The virile and active mountain sheep thrive on the short grass of the uplands where other animals would starve and owing to the dryness—due to low rainfall or rapid drainage—are not so prone to foot rot and other diseases that befall the larger and fatter animals reared in wetter regions. As a rule, owing to shortness and poorness of quality, their fleeces are of little value and so they are bred for their mutton. In winter the high features are bleak and snow-covered and therefore the animals are usually brought down to farms in the valleys.

Cattle thrive best on rich long grass and are most commonly found in valleys and on damp lowlands. However in certain mountainous countries, such as Switzerland and Norway, the highland pastures, or *alps*, which lie above the frost line, are used for cattle grazing during the summer months. The herdsmen accompany the herds and remain with them throughout the summer, living in temporary dwellings. In winter these pastures are covered with snow, so the herds have to return to the valleys. This seasonal migration of man and beasts is known as *transhumance*.

(*e*) *The forest region.*—This section that once played a great part in the lives of the early pioneers has now developed into a great source of wealth to those engaged in lumbering. Hunting and trapping, to a much lesser degree, also engage a number of people of more nomadic tendencies. As all of these subjects have been discussed in Lesson Unit III (Temperate Forests), the consideration of mountains can now give way to the second part of the topic.

Plain.—The land form known as a plain usually consists of a flat, widespreading lowland area terminated by the sea or a mountain range. It may also be found at a high level when it will be a plateau or an intermont plain, or then again it may rise gradually from sea level to a considerable height. (In North America the great plains rise to 6,000 ft.) Sometimes plains have arisen through an uplift or a sinkage of the land but generally they are the results of countless years of denudation and accumulation of soils. Names are given to them according to the chief agents employed in their construction. The best known are (*a*) marine, (*b*) fluvial, (*c*) glacial, (*d*) aeolian.

Marine plains are old sea floors now above sea level such as the Atlantic and Gulf coastal plains of North America. They are usually coastal plains though this term may include all types that fringe the coast. *Fluvial* or *alluvial* plains are deposits by water of eroded material, or special formations, such as a lake plain caused by the filling up or draining of a lake basin. Examples of alluvial plains occur in most river basins, in particular, the Ganges, the Nile, the Mississippi and the Hwang Ho. *Glacial* plains have been formed directly by the tremendous force exerted by glaciers or by deposits of boulder clay and other material by retreating ice. The numerous examples found in the northern hemisphere form one means of estimating the extent of the ice cap during the glacial epochs. *Aeolian* plains, or deposits of wind-carried particles, are usually covered with sand dunes and are common in all desert regions such as parts of the Sahara. They occur round many coasts, e.g. the Landes of Western France, and are seen also in the great *loess* deposits of North China.

Human factors.—Whatever type of plain is considered, unlike the mountain tracks it presents a great similarity of conditions over a large area and accordingly where occupations develop they support a much larger population. Thus the Indo-Gangetic plain presents an enormous contrast with the mountainous region.

The flat nature of the land makes communication easy. Roads and railways can be constructed without great difficulty, canals may be cut and the rivers used for transport. Towns and cities spring up, factories are built, trade and culture develop more rapidly and man becomes more progressive and his social conditions more advanced. The inhabitants of the mountains are generally behind the plain dwellers in wealth and material progress. This is well illustrated if a comparison is drawn between the highlanders and lowlanders of Scotland.

Then again, the fertile soil which covers many of the world's coastal plains is ideal for the production of rich harvests and agriculture is carried on. The eastern plain of England, the black earth lands of Russia or the great plains of Australia furnish excellent examples. On the other hand where climatic conditions preclude agriculture in all its forms as in the northern pine plain of Asia, population is sparse and consists of nomadic tribes who usually depend for their subsistence on hunting. In the Sahara or Kalahari deserts the soil is very rich in mineral constituents, but without irrigation nothing will grow.

Coast.—As with mountainous regions, the coast presents a variety of forms each of which is distinct in its effects upon the life and characteristics of its particular inhabitants. Generally speaking, the outlines are determined by the relief of the land, but by weathering and sea erosion and by accumulations carried by tides and rivers, change is continuous, the tendency being to straighten out finally all bays and headlands, Fig. 18. Briefly, the main features of coastline are as follows:

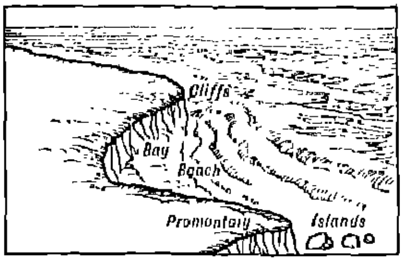


FIG. 18. COASTAL FORMATION

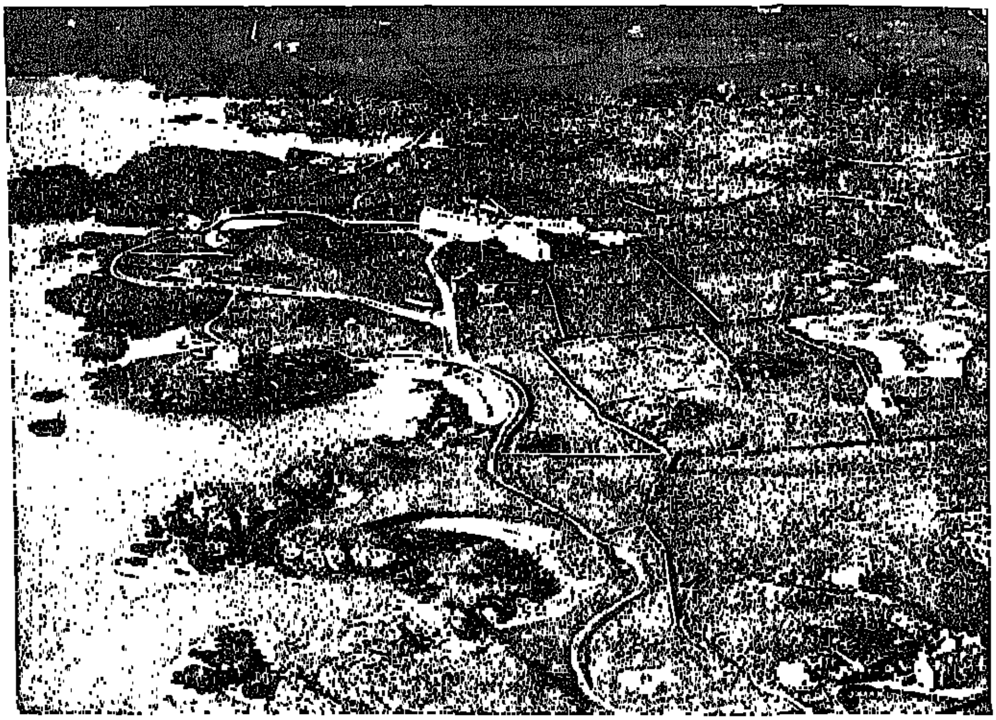
1. *Irregular.*—This is due to uneven erosion owing to varying degrees of hardness in the rock strata; e.g., Bantry Bay, and Dingle Bay in south-west Ireland, Plate XXIII.

2. *Accumulating.*—Where the tide sweeps along a coast and not at right angles to it, materials are deposited between headlands, forming shelving beaches; e.g., the south coast of England. Sometimes islands are connected to the mainland as seen in the Chesil Beach and Portland Island. The opposite effect of sweeping clear gulfs and bays occurs in south-west Ireland.

3. *Deltaic.*—In seas notable for small tidal movements such as the Mediterranean, Baltic and Gulf of Mexico, river silt is not carried away; deltas are formed and the blockage results in new channels being made to the sea.

4. *Sandy.*—On the coast of Belgium, Holland, Germany and south-west France, dunes are formed by the wind. Unless planted with grass or shrubs these tend to shift, forming narrow spits of sand that enclose numerous small bays, called *haffs*.

5. *Uplifted.*—These coasts are usually straight and low with small islands close to the shore, an expected result from an



[Photo: Aerofilms, Ltd.

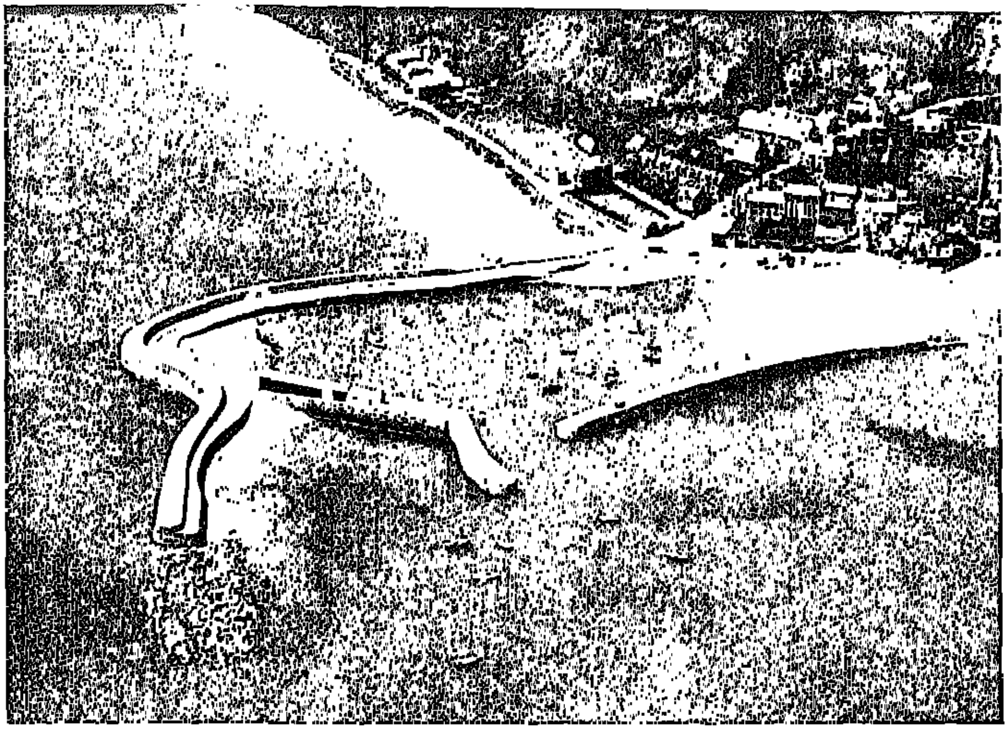
PLATE XXIII. ROCKY COASTLINE, NEAR HOLYHEAD

old sea bed covered with its layers of accumulated materials. Examples are seen in the U.S.A. from New Jersey to Texas. Old coastal shelves, now forming raised beaches, occur in the west of Scotland and in Scandinavia, and in the North American coast from Oregon to Central Chile the sea floor has been uplifted to form high folded mountains.

6. *Submerged.*—This varies according to the character of the land. Highland areas will produce great irregularity with promontories, straits and gulfs such as the coasts of British Columbia, Norway, the west of Scotland and Greece. If glacial action has occurred, then deep U-shaped fjords will be found. Submerged plains result in low, smooth coasts as seen in the east of England, and where faulting has occurred in former plateaux with a consequent sinkage, then the coasts will be high and regular. Africa, Western Australia and south India provide good examples in this respect.

Coastal peoples.—The first effect of coastal environment upon people is generally associated with fishing. Two types of coast are unsuited to this industry. Firstly, rocky ones rising out of deep seas, exposed to wind and storm; and, secondly, sandy coasts sloping out to shallow seas. Parts of western Ireland have rocky inaccessible coasts shut off from the land by mountains which stretch down to the sea. Neither sea nor land yields much to sustain the inhabitants and what sparse population there is ekes out a very meagre livelihood. A flat sandy type of coast on the other hand often has a rich hinterland, and here, as in certain parts of China, the inhabitants live by agriculture and little attention is paid to fishing.

The main types of coast which make



[Photo: Aerofilms, Ltd.

PLATE XXIV. SMALL FISHING HARBOUR, LYME REGIS

fishing of great importance are (*a*) the fjord regions of mountainous countries such as Norway, and (*b*) the lagoon type of coast of lowland areas. Both have calm waters for they are protected by natural breakwaters. Communication between land and sea is easy, and we find that fisheries develop very rapidly and spread from the calm sheltered waters of the fjord or lagoon to the open sea. From Norway the fishing fleets put off to the Lofotens where cod abound or to Arctic regions for seals and whales, and from many English ports trawlers journey to the Dogger Bank fisheries.

Life among the fishing peoples.—A boat plays the same part in the life of these people as does the horse to the steppe dweller or the camel to the nomad, and fishing becomes a semi-nomadic occupation. The women and children remain at home carrying on a little agriculture while the men are at sea. Thus the Norwegian farms are largely managed by women, who acquire power and responsibility almost equal to that of the men.

Races engaged in sea fishing frequently develop into adventurous traders. The sea is their highway, their boats are their means of transport, and they become used to a life of constant movement. From a race of fishermen the British peoples have developed into a nation of explorers and traders whilst in the far east the people of the Malay archipelago are renowned for their roving habits. Then again, fishing races have always been ready to migrate. Unfriendly coasts are ill suited to support an increasing population and history provides many stories of expeditions of the Northmen to Iceland, Greenland, North America and to various countries of Europe.

Legitimate occupation and adventure of the fishing races has often developed into piracy. The corsairs of the Mediterranean terrorised mariners until the nineteenth century, and Drake was one of the most famous of all pirates. The Malay and Chinese waters have even now a not undeserved reputation for piracy.

The other outstanding feature of coastal life is the *development of ports* and shipping. Ports have grown up especially near the mouths of navigable rivers where they could act as receiving and distributing centres for goods. Among the circumstances favourable to their growth are:

1. *Approach.*—A good depth of water must be available at high and low tides to permit large ocean-going vessels to come up at all times. In the bigger estuaries the channels are kept clear by tidal action, but for the exceptionally large vessels it has been necessary to increase the depth by constant dredging, as in the case of the Clyde where the *Queen Mary* was built.

2. *A safe anchorage.*—This is particularly necessary whilst carrying out the operations of loading and unloading. The larger ships do not anchor at wharves at the riverside, where they are liable to be seriously damaged by the falling tide. Moreover if they anchor in mid-stream they cause congestion of traffic on the river. Therefore in regions where the range of tides is great, ships pass into basins or docks at high tide; the dock gates are then closed so that with the fall of the tide the water in the dock does not fall. London, Hull and Liverpool have many acres of docks which have been carved out of the soft alluvial land adjacent to the river.

3. *Equipment.*—There must be efficient machinery—cranes, warehouses, transit sheds for quick loading and unloading of cargoes.

4. *Easy access to the hinterland.*—It is no use being able to get goods to the port without being able to dispatch them easily overland. A prosperous and accessible hinterland is a necessity for a modern port. Good means of communication by road, rail and water are thus essential. Fishguard and Plymouth are noted ports but their hinterlands are sparsely populated, whilst Liverpool, Hull, Glasgow and London have dense populations near at hand and have therefore developed on a much larger scale.

5. Rivers must be free from ice all the year round.

London may be taken as a typical example of the ideal port, Fig. 19. Throughout historic times the great port of Britain has been London. Situated in the south east of the island, in the region most favourable for agriculture and facing the continent of Europe, London grew at an early date as the point through which trade passed. To the town with such an excellent anchorage, ships sailed from the continent laden with wines, spices and cloths, and returned to the continent with raw wool and cereals. As new lands were discovered London developed into a large market for goods. So there came from the West Indies ships laden with sugar,

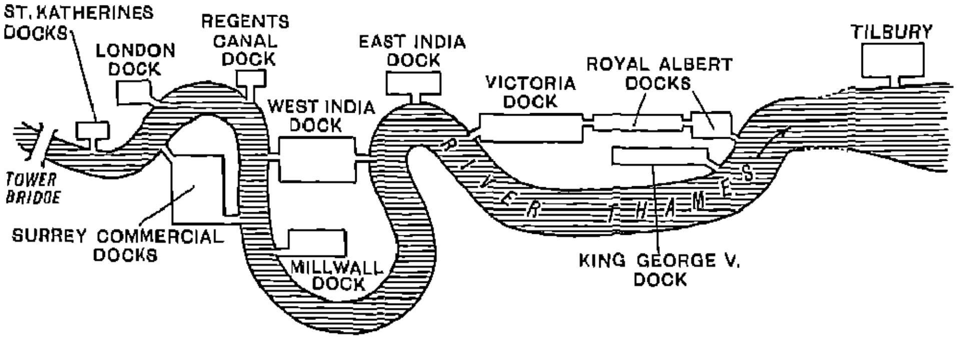


Fig. 19. The London Docks

rum and tobacco, and ships from the East Indies laden with spices and tea. Then later still from Canada, Australia and New Zealand came wheat, wool, meat and dairy produce, and in later years, when cold storage was perfected, fruit. Large quantities of timber came from Norway, Canada and Scandinavia. With the ever-increasing varieties of goods and the establishment of many markets and exchanges, London became the chief centre of the world for buyers and numerous classes of products are re-exported coastwise or to continental ports.

Manufactures, extraordinary in their variety, developed around the city and now form the most prominent feature of a vast export trade. To cope with the great activity, a network of railways, both surface and underground, has been constructed, there being some 650 railway stations as well as the termini of all trunk lines. In addition, thousands of motor vehicles of all types run in all directions and aeroplanes are available for speedy travel from numerous handy airports.

Memory work.—1. In any one country people are different from each other according to the kind of land where they have become used to living.

2. Highland people are very hardy; they become used to cold, drought and often hunger. Fishing folk are generally more daring and adventurous. Plainsmen settle down, form comfortable homes and strive by learning to improve the way of living.

3. From mountain top down to level plain may be found, firstly, miners, then shepherds, then lumberers, hunters and trappers and lastly herdsmen.

4. The chief minerals may be grouped in this way:

Fuel—coal and mineral oils.

Building materials—marble, slate and granite.

Metals—iron, copper, lead, tin and the valuable ones, gold, platinum and silver.

5. To-day, Johannesburg in South Africa is the centre of the greatest gold mine in the world.

6. Lowland sheep are large and good wool producers, highland sheep are small, active and valuable for mutton.

7. Plains are always flat but they may be very high up or very low.

8. They can be formed by the work of the sea, a river, ice, or the wind.

9. It is easy to construct roads, railways, canals and bridges on plains. These are great helps to better living.

10. No seaside town can grow into a great port unless there is (*a*) deep water always; (*b*) a safe harbour; (*c*) a quick means of bringing goods from the land and sending them away as they arrive by water.

Activities and exercises.—1. *Answer these questions briefly.*—Look them up where necessary:

(*a*) What are you, a boy or girl of the mountains, coast or plain?

(*b*) A plainsman may earn more money, but in what ways is a man of the highlands better off?

(*c*) Name two minerals that come from where you live. If you know of none, name two kinds of earth that a workman would meet in digging a deep trench in the road for pipe laying.

(*d*) Are there any nomads in England? If so, who are they?

(*e*) What port did the most famous one-legged pirate in fiction sail from?

(*f*) Whereabouts in London are the markets for these products:—wool; grain; foreign produce such as tea, rubber and sugar; coal; hops; metals?

2. *Diagrams.*—Make three large diagrams indicating mountain, plain and coast and illustrate each with suitable pictures collected from newspaper photographs; e.g., alpine sports, highland sheep scenes, unloading ships. Put in as many varieties of occupation as possible.

3. *Many ideas for handwork* can be found in this section: the famous highland tartans are excellent for weaving, fishing nets of

various mesh can be made and utilised for netball, goal posts or covers from birds in the garden.

From ports and mines, working models more difficult in construction can be made; e.g., cranes, grabs, trolleys and elevators. The many types of coast also form a good subject for a series of models in papier mâché.

4. *Written work.*—Subjects for further written work following research include:—The markets of London, a dockside scene, modern means of transport.

5. *Graphs.*—The world's largest ports are the world's largest towns. Here are some with the approximate population by the side. Find out the position of each and compare the sizes by means of coloured column graphs:

Greater London	7,500,000
New York	5,600,000
Chicago	2,700,000
Buenos Aires	2,300,000
Hankow	1,600,000
Calcutta	1,500,000

SECOND YEAR COURSE

THE BRITISH EMPIRE

LESSON UNIT I—THE SIGNIFICANCE OF THE BRITISH EMPIRE

Introduction.—In introducing the story of the British Empire, it is suggested that the first periods be taken viewing the vast area as a whole not merely to impress upon the children the great importance in relation to the rest of the world as far as size, variety of natural regions, and peoples are concerned, but to create a sense of the bond uniting such far-flung and differing peoples, the relationship with the British Isles and the uniqueness of the means of preserving that unity. A consciousness of fellowship will help to give a more sympathetic feeling when separate units come under consideration and will relieve the detachment and insular outlook that is often common in the study of peoples beyond these shores. With this idea in view, a summary of the ideals of government has been given to help as a guide.

Following this, a plan is suggested by which the course of study may be followed. The historical development of the British Empire is of course a study in itself, but to preserve the interests the salient facts are interposed at various suitable places.

The link with the British Isles.—1. *Stages in imperial life.*—When it is said that the growth of the Empire has never ceased, it does not imply the addition of territories but it means that constitutional development is constantly proceeding. Three great stages mark the progress now achieved. They are:

(*a*) *The period of trade expansion* when England was merely an Atlantic power excepting for a foothold in India.

(*b*) *The period of territorial expansion* which brought many raw materials within the Empire.

(*c*) *The rise of the great English-speaking commonwealths* who have now by their own vigour developed into independent centres of British life.

2. *The association to-day.*—In 1887, delegates from the Dominions came to London to the first Imperial Conference as representatives of subordinate countries. In 1937 they came as representatives of sovereign nations, equal in status to Great Britain,

and, in every sense of the word, independent. The cause of this great change, that instead of separation has resulted in greater unity and strength, may be seen in the following extracts from speeches of prominent statesmen.

In the words of the Hon. R. G. Casey, the Treasurer of the Commonwealth of Australia, "It is practical politics. It is like belonging to a club whose members are friends and have the same background and habits and prejudices. So long as the British Empire exists so long shall we have a large measure of personal freedom."

Again, on April 16, 1937, the Prime Minister (Earl Baldwin) broadcast a speech on *The Responsibilities of Empire.* He said, "For we, the peoples of the Empire, in our relations with one another, have set an example of mutual co-operation in the solution of our problems such as, I believe, no group of nations has ever before achieved. We have demonstrated to the world in actual practice that difficulties can be resolved by discussion as they cannot be resolved by force. Our representatives meet in conference, not to ratify pronouncements of policy but to exchange ideas and by discussing these ideas to arrive at a just measure of mutual agreement. In this we find not weakness, but strength. Tolerance creates confidence; and confidence harmony.

"We have shown the world how a system based on these conceptions can serve not only the domestic needs of countries which compose the Commonwealth, but those of the Commonwealth as a whole. May we not hope even to persuade other nations that the method of co-operation would be serviceable on a still wider scale?

"Moreover there is a fundamental difference between the Commonwealth and other political organisations, which should strengthen its power for good—and that is this. The Commonwealth is founded on the conception that war between its component parts is unthinkable, impossible—a conception as striking as it is new to political theory."

The study of the Empire.—It is suggested that this should fall under three main divisions:

1. *The self-governing dominions* of Canada, the Union of South Africa, Australia and New Zealand. (It is considered more convenient to include the Irish Free State (Eire) in the third-year course which contains a study of the British Isles.)

2. *India and Burma.*—India is not yet fully autonomous. Some parts of it consist of native states ruled by princes under British guidance whilst the remainder, known as "British India," was until recently ruled by British representatives. Under the new constitution of the All-India Federation of Self-governing Provinces which came into force in 1937, a much greater degree of independence has been given. For example, Provincial Legislatures have been given almost complete control over *provincial* subjects such as education, health, agriculture, etc., whilst *central* subjects such as finance, commerce, industries, and communications are controlled by the Central Government. Defence and foreign affairs, however, remain *reserved* subjects in respect of which the Viceroy is responsible to the United Kingdom Parliament and not to the Indian Legislature.

Much discontent is felt in India owing to these reservations, but it must be remembered that here is a vast country with an immense illiterate population, with racial differences greater than exist in Europe, and with many different languages and creeds.

The problem of welding this huge and ancient civilisation into a self-governing unit is one of the greatest difficulties of the Empire, and particularly so as her position as a bridge between Asia and Europe makes her future of outstanding importance to the world.

3. *The British possessions.*—This is merely a name for the different Protectorates, Dependencies and Crown Colonies, the Mandated Territories, and the various military, naval and coaling stations which are

scattered in various parts and whose importance is altogether out of proportion to their size.

Altogether they are about forty in number, and contain some 55 million inhabitants of widely different races and religions whose well-being is the responsibility of the Colonial Secretary.

The government of these areas, following the experience of centuries, is based upon the principle that the best external control cannot offer the satisfaction that is given by self-government based upon the traditions of the people concerned. In the words of the Secretary of State for the Colonies, May, 1937, the aim is to "seek out and strengthen what is good and permanent in the native institutions of the manifold peoples who are in our care, and help them to the best of our ability to manage their own affairs for themselves."

The Mandated Territories mentioned above are former German colonies which together with certain areas in Asia, which had been ruled by Turkey, were, after the Great War, divided between Britain, France and Italy. These countries were given a "mandate" from the League of Nations to rule the lands for the benefit of the natives with a view to giving them complete independence when they were fitted for it. The chief British Mandates were Iraq, Tanganyika and Palestine, and of these Iraq has already been given independence. The Union of South Africa holds the mandate for South West Africa, and Australia the mandate for a part of New Guinea.

Memory work.—1. The British Empire is the greatest union of nations in the world. It contains over a quarter of the world's land area, nearly a quarter of the whole population, and covers almost every type of natural region and stage of civilisation.

2. It is most famous for the closeness of the friendship although the various peoples look after themselves.

3. This is because British people have learnt to agree. They respect the ideas of others and do not try to force everyone to have the same opinion.

4. Some parts of the Empire are called *Dominions*. These are strong and are quite separate, with their own government.

5. Other parts such as Colonies and Protectorates still need some protection by the mother country. They look after themselves as much as possible.

6. The British Crown, represented by our king, is the symbol or sign of the freedom and goodwill that keeps the whole Empire together.

Activities and exercises.—1. *Questions for reference work and short answers:*

(*a*) What parts of the Empire are in the intermediate or temperate zones?

(*b*) What parts lie within the tropics?

(*c*) India is not yet autonomous. What does this mean?

(*d*) Which parts of the Empire are inhabited mostly by people of British descent?

(*e*) Who is the present Colonial Secretary?

(*f*) Who represents the king in India?

(*g*) Find two reasons why India is not a Dominion.

(*h*) The importance of some small parts of the Empire is out of all proportion to their size. Write down six such places.

2. *Prepare a geography notebook* for the coming year. There should be a section for things to remember, a section for questions to find out and plenty of room for illustrations, maps and graphs on their own pages. Ideas for decorating the cover can be found among the coats of arms of the British Empire, which are reproduced in this volume.

3. A large *map* on the wall that can be gradually filled up as the study of the Empire progresses could be made by each House. A template of the world, notebook size, is very useful for each pupil.

4. For decorative work *a frieze* is very interesting. It could be gradually built up with *motifs* from the coats of arms mentioned above.

5. Suppose you were put in charge of the celebrations for Empire Day. Devise a suitable tableau that you would like. State the arrangement, costume, etc.; if you think speeches would give more life and interest, write the words for your characters in the form of a little play.

LESSON UNIT II—AUSTRALIA

Introduction.—Following upon the first-year course, Australia is eminently suited as a starting point for more detailed work. In this land almost every type of tropical and temperate life is represented and consequently a natural step forward can be made without a wide gap to bridge. A new aspect given by the many years of remoteness of the continent that have resulted in the existence of forms of life unmet in other parts of the world provides an additional interest.

Among the aims in a series of lessons the outstanding points suggested are: (1) the diversity of climatic regions, (2) the vastness of the areas still unpopulated, and (3) the present position as a modern country 150 years after the first colonists had denounced it as "a place so forbidding and hateful as only to merit execration and curses."

In the last respect the children should come to understand Australia as an entirely independent nation with its own ways of living and not as an England of the southern hemisphere. At the same time such significant marks as the preservation of the old traditional holly and pudding on many tables in the blazing heat of a Christmas day, and the wigs of judges coloured by the summer heat, still betray deep-rooted

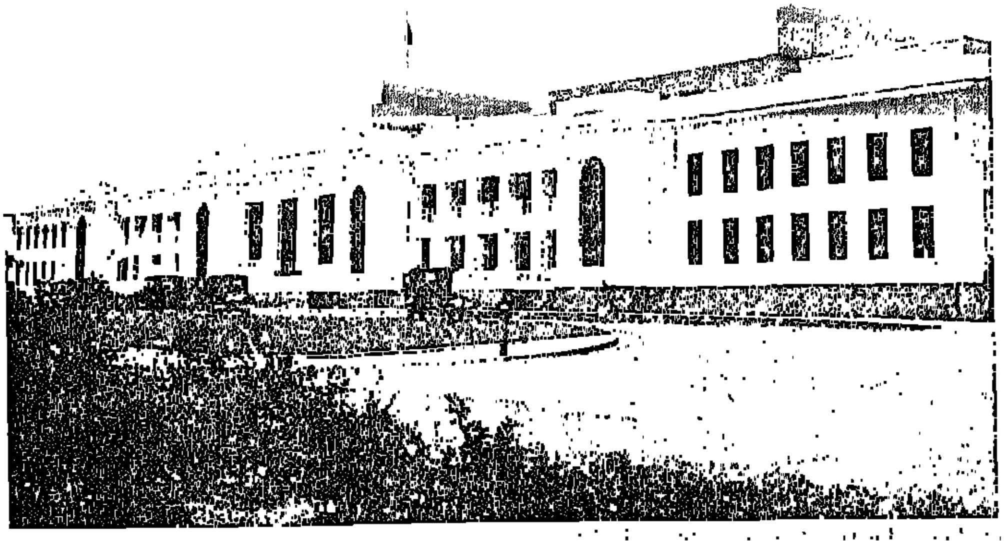
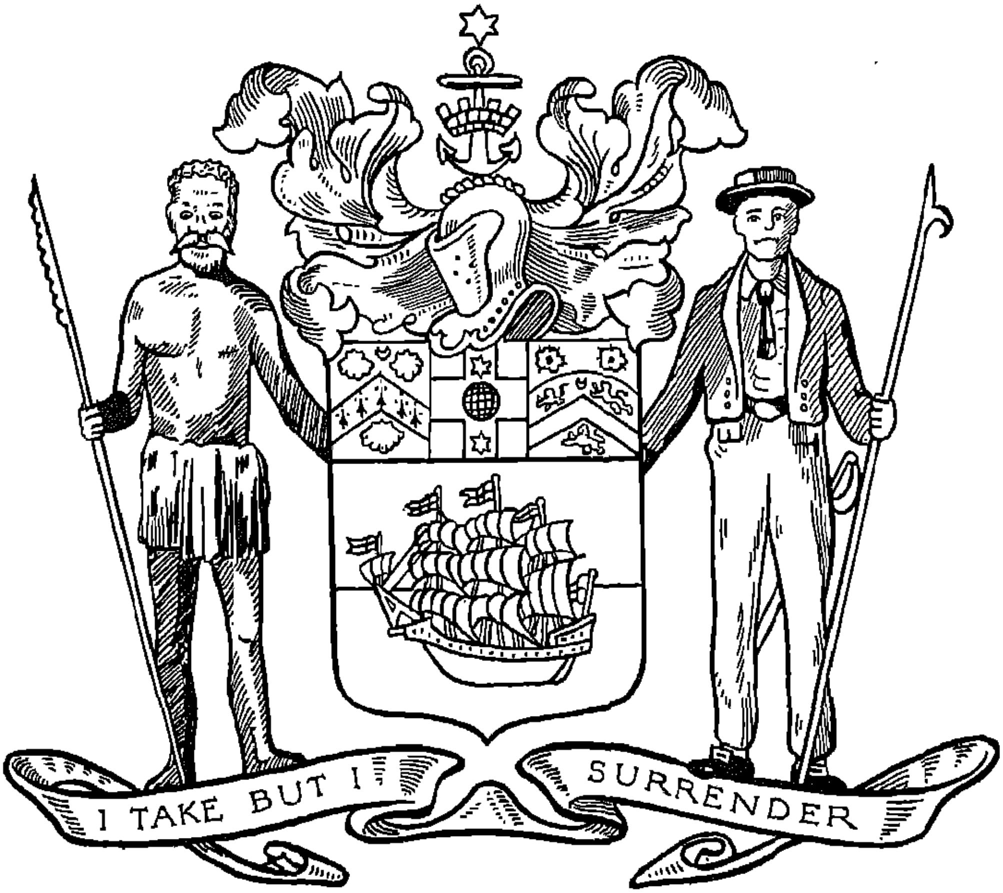


Plate XXV. Parliament House, Canberra

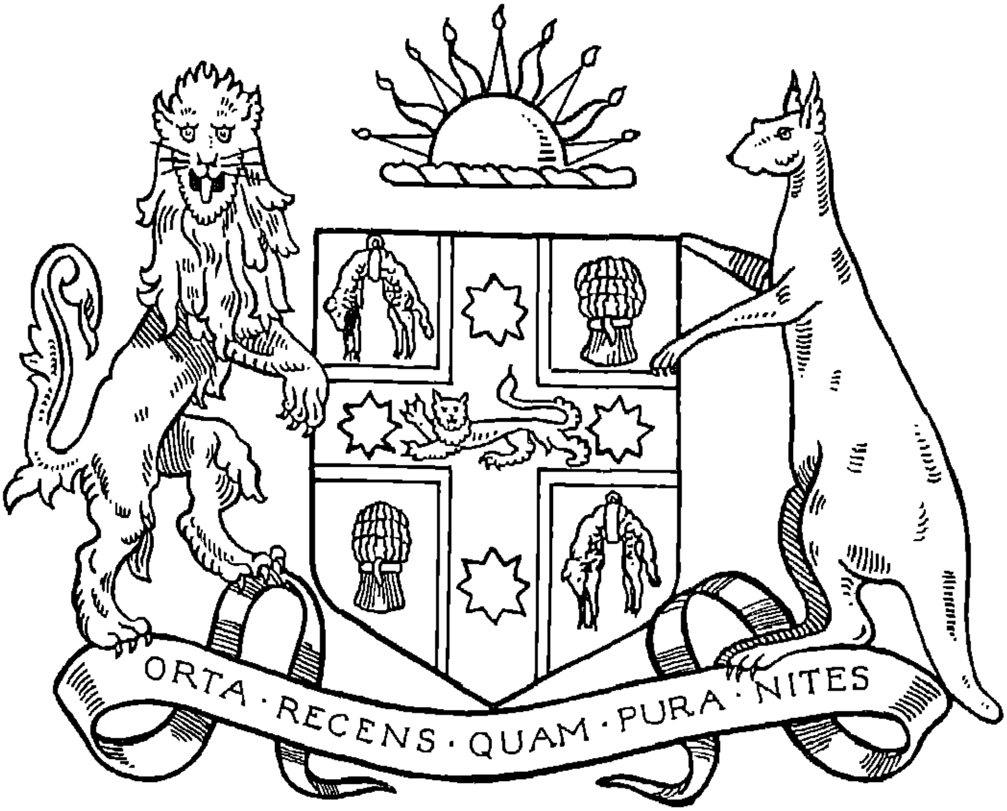

I TAKE BUT I SURRENDER

Coat of Arms of Sydney

British instincts that time and distance cannot efface.

Historical aspect.—Australia was among the last of the large land masses of the world to remain undiscovered. This may seem strange, as the chain of islands stretching between south-east Asia and Australia would seem to constitute an ideal bridge which would lead naturally to the discovery of that continent. The continent was, however, well off the normal trade routes; ships sailing from Europe, via the Cape, always followed a northerly course along the east coast of Africa before turning eastwards, whilst those sailing across the Pacific from Cape Horn used the trade wind belt which carried them well to the north of Australia. Thus, the mystery of Terra Australia Incognita, the land that had created geographical speculation amongst the Greeks and Romans and that had stirred the imagination of the thrustful nations of the sixteenth century, was not dispelled until January 26, 1788, when the British flag was raised at Sydney cove and the foundation of European society in Australia laid.

Previous to this the Dutch had made a tentative landing, but it was the British who brought to completion long centuries of search. By the year 1770 Capt. Cook had


ORTA · RECENS · QUAM · PURA · NITES

Coat of Arms of New South Wales

charted the coasts of eastern Australasia; by 1774 he had proved the emptiness of the South Pacific and in 1802 the outline of the continent was established by Matthew Flinders.

At the outset the English Government considered Australia "a very proper region for the reception of criminals," but Governor Phillip, though carrying out his duties as gaoler in the midst of privation and squalor, spoke with vision when he said, "The country will prove the most valuable acquisition Great Britain ever made."

Settlement soon began side by side with penal colonisation and squatters gradually pushed forward towards the eastern mountain barrier.

In 1796 John MacArthur began his experiment with sheep breeding that brought fame and overwhelming victory in the British wool market within fifty years. An age of explorers and squatters followed; in 1815 an expedition in search of new pastures succeeded in reaching the crest of the Blue Mountain Plateau and crossed the divide towards the Fish River Valley, and in the same year work began on a road joining Sydney to Bathurst. A further search for pastures, combined with an attempt to find routes which would link up the scattered coastal settlements, led into the interior, the most notable being that of Eyre who in 1841 travelled from Adelaide westwards along the Great Bight into Western Australia, and that of Burke and Wills who in 1860 succeeded in crossing the continent from south to north.

Settlement on the basis of sheep farming was progressing slowly, but in 1849 gold was found at Bathurst. This led to a "rush" which attracted many people, whilst further discoveries at Ballarat and Bendigo brought still more settlers, and for a period of about five years an average of over 300,000 emigrants left England for Australia each year. For many years Australia led the world in gold production, but the real importance of the discoveries lay in the attraction of settlers, who when the "rush" died down remained in the country as farmers. Increasing demands for agricultural land by new settlers and ex-miners led to intense rivalry with the rich squatters who now owned big estates. After a period, in which feeling became very bitter, a system of social control was gradually evolved that offered fair and reasonable conditions of living for all classes, squatter, merchant, digger, farmer and artisan.

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PLATE XXVI. AUSTRALIAN ALPS—VIEW OF MAIN RANGE INCLUDING MOUNT KOSCIUSKO

The various *States* in Australia developed between the years 1825 and 1890. For a long time there was no co-ordination between them but it came to be realised that union would be of advantage to all for reasons partly of defence, partly economic. Accordingly, in 1901 the Commonwealth of Australia was formed by which each state retained its Parliament with a *Federal* or Central Parliament to which representatives were sent from each. Northern Territory is governed directly by the Federal Government which has its seat at Canberra (Plate XXV), the capital of Australia. Intense rivalry between the various large towns for the position of capital of Australia had led to the choice of this town which is situated in New South Wales and is surrounded by a small area of Federal Territory. In 1927 King George VI, then Duke of York, opened the New Parliament House there, Plate XXV.

Natural aspect.—1. Relief and drainage.—There are three well-marked relief divisions:

(*a*) *The eastern highland area* formed by the uplift of an old eroded range that descends sharply towards the coast and gently towards the interior.

(*b*) *The western plateau* which rises steeply from the coastal plain to an average height of 1,500 ft. and is marked by such higher altitudes as the Macdonnell and Musgrave Ranges.

(*c*) *The central lowlands* that were once covered by the sea and drain to the Gulf of Carpentaria in the north, to the Murray river in the south, and in the centre, an area of inland drainage, to Lake Eyre.

The rivers of Australia are relatively unimportant and many of them are in reality mere series of pools during most of the year. The only large river which maintains its existence all the year is the Murray but even this has a low summer level and enters the sea through a very shallow outlet (Lake Alexandrina).

The northern section of the central lowlands forms a shallow basin, and is an important artesian area which extends from the Gulf of Carpentaria to the Murrumbidgee River.

2. Climate.—The climate of Australia is influenced by three main factors: (1) Latitude (the northern half lies within the tropical zone). (2) The mountains are near the east and south-east coasts. (3) The uniformity of the coastline causes the sea to have little effect upon the interior.

Taken in general, in December (southern summer) the whole area, with the exception of Tasmania, lies in the belt of the south-east trades. The dry interior becomes very hot, low pressure is established over it and a "monsoon" effect is experienced in the north coast. In July (southern winter) the wind belts have moved north and the southern coasts consequently come within the influence of the westerlies.

These conditions have resulted in the formation of six definite climatic regions:

(*a*) The tropical north districts with heavy summer rains brought by the "monsoon" or the south-east trades.

(*b*) The desert of the central region and west coasts. Only the interior is true desert, the remainder being covered with acacia, saltbush and other scrub.

(*c*) The "Mediterranean" regions round Perth and Adelaide.

(*d*) The temperate grasslands of the east part of the Murray-Darling lowlands (the Downs). This summer rain area has the best grass in the continent.

(*e*) The east coast region of eucalyptus forest and grassland which has rain at all seasons.

(*f*) Tasmania, a deciduous forest area, with an insular climate of the west-European type.

3. Native life.—One of the features of Australia is the existence of many forms of life that have either disappeared or are extremely rare in other parts of the world. This is probably owing to her long dissociation with the mainland.

(*a*) *Vegetation.*—Most of the plants are of the drought-resisting variety and include eucalyptus and other gum trees, a great range of acacias, saltbush and prickly pear. The last-named is a pest to farmers and covers an area equal to that of the British Isles. Grass is abundant and in the drier regions is notable for the speed and luxuriousness of the growth after rains, followed by rapid disappearance.

(*b*) *Animals and birds.*—The most remarkable animals are the marsupials or pouch bearers, amongst which species of kangaroo, opossum, koala, are the best known. Other extraordinary creatures, half bird, half animal, are the platypus and the echidna, Plate XXVII. Reptiles such as crocodiles, lizards and snakes are common in the north

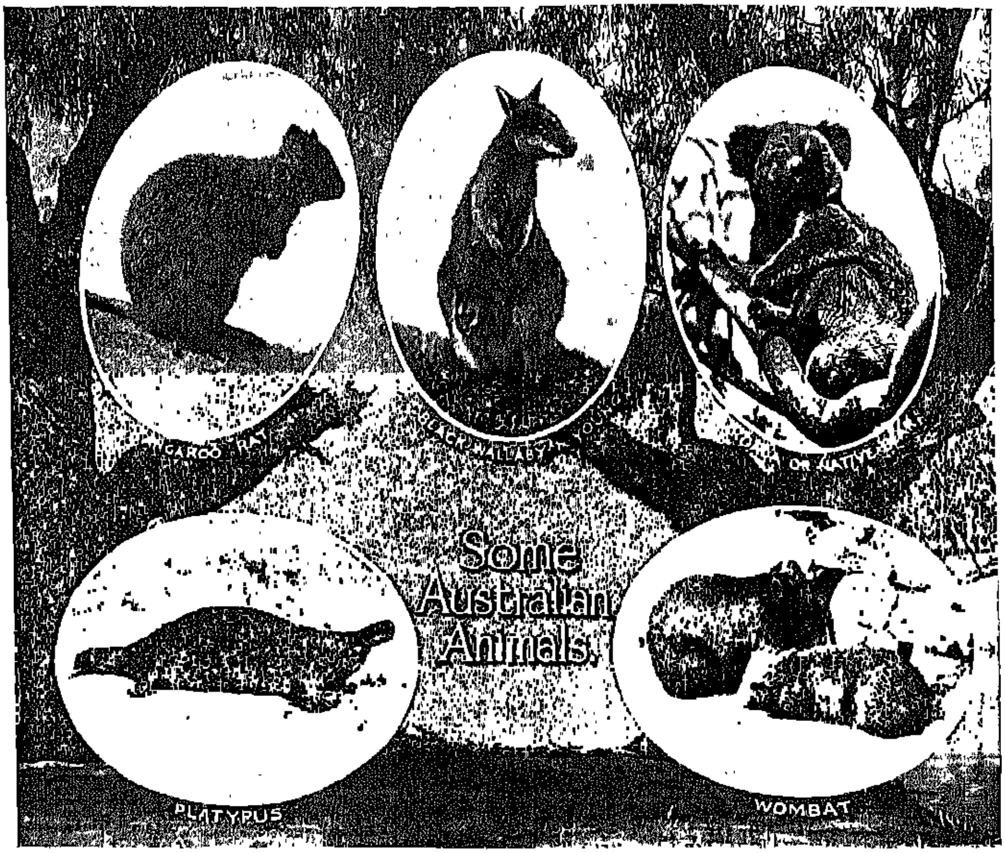

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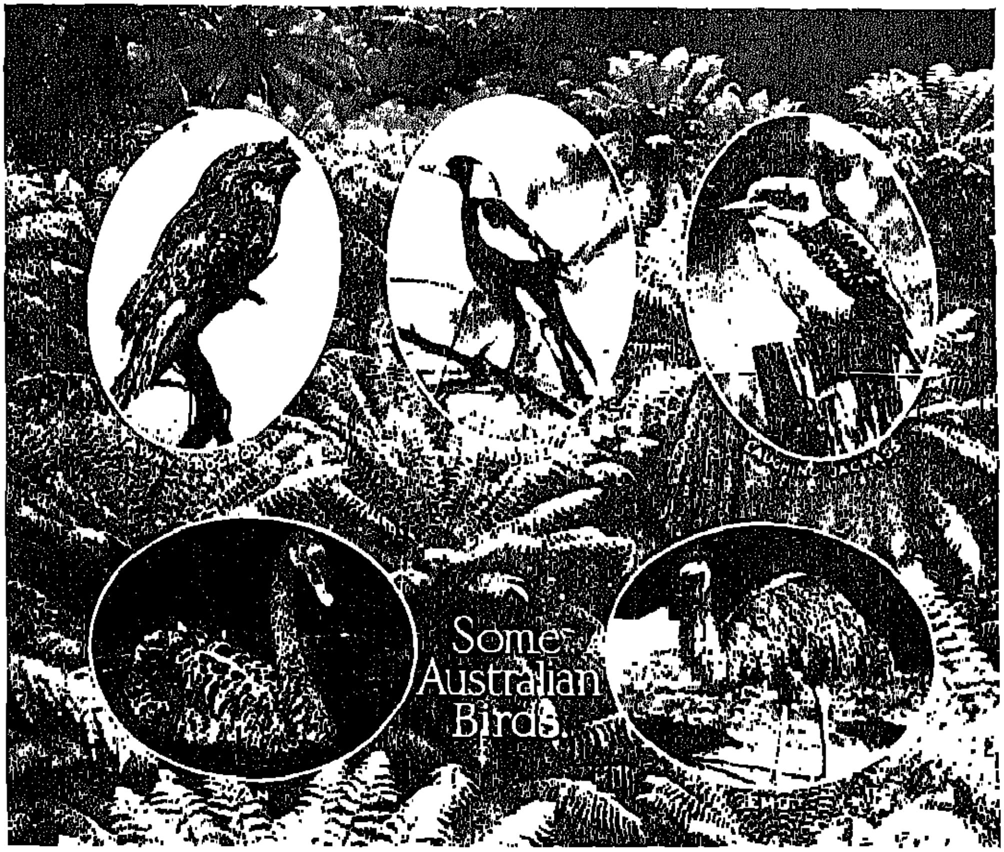
PLATE XXVII

east; and among the birds, the flightless ones, the emu and cassowary, the megapodes or mound builders, the lyre bird, the honey-eater, the bower-builder and species of parrot are outstanding, Plate XXVIII.

Native pests are seen in termites in the hot regions and the dreaded sheep worriers, the Tasmanian devil and the dingo or wild dog. To these have been added the rabbit, fox, sparrow, starling and in Central Australia even the camel has been known to have become feral.

(*c*) *Man.*—The Australian aborigine (Plate XXIX) is a pigmented (but not black) wavy-haired descendant of people of the old stone age, and to-day, in natural surroundings, is still the same in social characteristics and in material culture. He belongs to the hunting and food-collecting class, is content with a wind screen of rough branches as a shelter and has no regard for clothing. Generally speaking he is friendly, ingenious, a skilled tracker and observer of natural life and practises a rigid and complex code of living. Unfortunately, he cannot exist amongst white people. Detribalised he becomes a parasite and quickly deteriorates. Thus, to-day, a mere 30,000 remain of the 300,000 in the year 1788.

Strong communities still exist in the north and here fishing from a bank or dug-out canoe with or without outriggers is


Some Australian Birds.

[Reproduced by courtesy of the Australian Trade Publicity Board.

PLATE XXVIII

still pursued and the use of the boomerang, the digging stick, the shield and the club practised.

Modern aspect.—In the approach to Australia of to-day, in order to present a wider outlook upon her prosperity and importance in the world the position of each of the main sources of wealth will be taken as a whole rather than a comparative study of the continent in political or natural sections.

1. General survey.—The greater concentration of activity occurs around the Perth district and the south-east region from Rockhampton to Spencer's Gulf, in an area extending to about 200 miles from the coast. Beyond that is a fringe, leading in the east as far as Cooktown and passing into the great stretch of unproductive desert that may be termed a region of pioneer belts mainly confined to cattle rearing and sheep farming, and, finally, a northern tropical area unfavourable to close white settlement.

2. Sheep farming.—This is the Commonwealth's essential industry; each state is vitally concerned in it and more than 70 per cent of all occupied land, mostly south of the tropic, is taken up with flocks. To-day, flock owners number between 85

[Reproduced by courtesy of the Australian Trade Publicity Board.

PLATE XXIX. ABORIGINE MAKING A STONE AXE

and 90 thousands and the sheep as many as 115 millions, almost half of which are to be found in New South Wales in the famous grazing lands of the Murray-Darling river system. Merinos, prized for exceptional size and great wool-bearing qualities, are the principal animals, though Southdowns and crossbred types are becoming more common in special districts for meat production. The common *salt bush* of Australia provides excellent food for the flocks, and though pests and drought are serious enemies the industry is the most flourishing in the world.

Since the historic day in the year 1821 when John MacArthur sold twenty-seven bales of wool in the market at Cornhill, London, the export has grown to an unprecedented amount. The wool clip for the year 1937-1938 is estimated at a value of at least £A.50,000,000 and the quantity for export at over 2¾ million bales. Ever since 1860 Great Britain has been relieved of any dependence upon foreign wool, and to-day more than thirty-six countries are seriously concerned in the supply. Details of export in bales for 1937 to the six leading buyers are:—United Kingdom 1,067,688; Belgium 440,674; Japan 286,628; France 277,428; U.S.A. 263,805; Germany 151,226.

3. Dairying and cattle rearing.—These are really two industries apart for there is a great distinction between the raising of herds for butter in the more equable regions of New South Wales (Plate XXX) and Victoria and the rearing of beef cattle in the wide-spreading stations (some, several thousand square miles in area) of Queensland. Taken together there are some 14 million animals in the continent, 70 per cent being utilised for meat and the rest for dairying. Of these the principal distribution is 44 per cent in Queensland, 24 per cent in New South Wales, and 14 per cent in Victoria. Dairying is Australia's youngest primary industry and since the appeal of the council of the League of Nations to improve nutrition among the butter-starved nations of Europe, it has come into great prominence. Australia provides ideal conditions for dairying; the cattle can remain in the open all the year round; long hours of sunshine produce healthy stock and the butter is rich in vitamins. Intense development has begun; English grasses and clovers have been introduced to improve poor pastures, the amount of butter fat produced by the stock greatly increased and farms are rapidly extending inland from along the coast.

In Queensland, the principal beef cattle region, many difficulties confront the farmer, the chief being the distance of many stations from the ports (Townsville, Rockhampton, Brisbane) and the poverty of the pasturage over wide areas owing to poor soil and drought. The water problem is partly solved by the boring of a large number of artesian wells, and in order to get the animals to the coast stock routes have been planned where grazing is available for the herds as they pass along. Since the introduction of chilling instead of freezing, the beef export trade has increased enormously and now Smithfield, the London market, takes at least 90 per cent of the total supply.

Some statistics of the year 1937.—Yield of butter fat in lb. per cow—Victoria 240; New South Wales 130; Queensland 120. (Denmark 300.)

Exports

Value		*Weight in* 1,000 *lb.*	
Butter	£9,000,000	Mutton & Lamb	208·525
Meat	£10,332,000	Beef	233·984

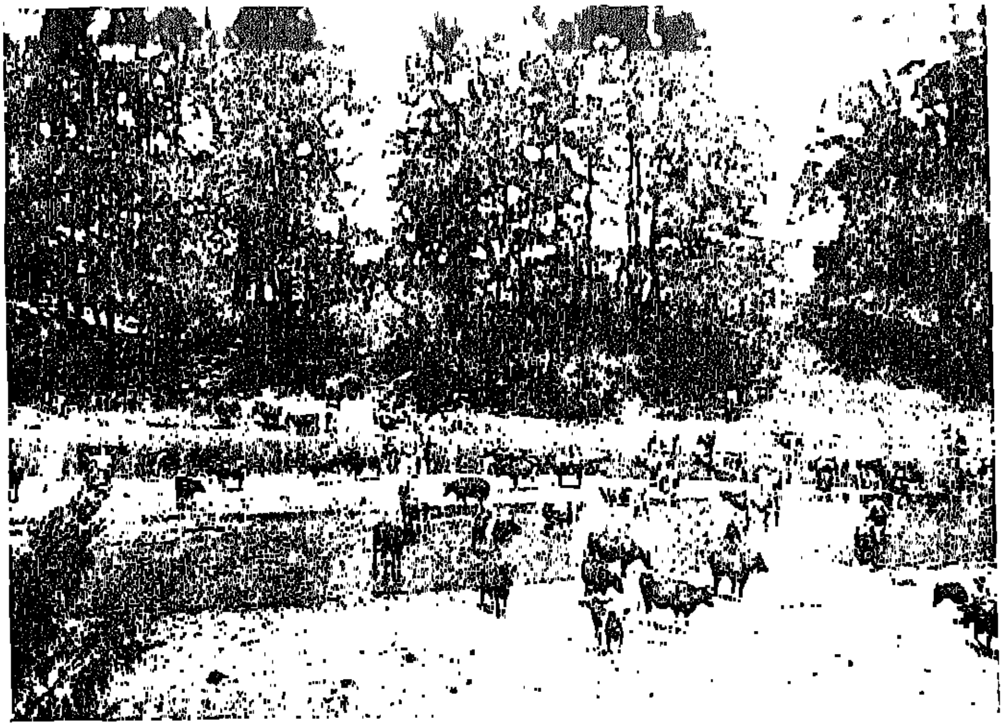


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PLATE XXX. DAIRY HERD, N.S.W.

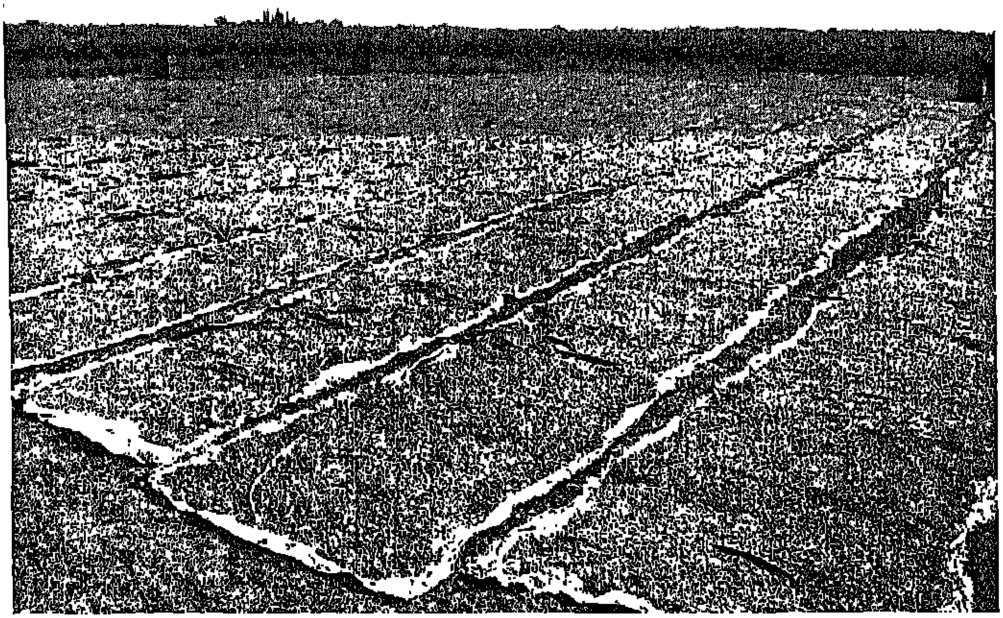

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PLATE XXXI. FRUIT-DRYING LAWN

Great Britain takes almost the whole supply of Australian mutton and lamb and 95 per cent of the butter, other customers being (1) for beef, Egypt, Malta and Japan; (2) for bacons and hams, the Netherlands, East Indies, British Malaya, the Philippine Islands, Hong-Kong and New Guinea.

4. Wheat growing.—About 13½ million acres, scattered through the region of winter rains, in West Australia, South Australia, New South Wales and Victoria and, with the exception of South Australia, over 100 miles from the coast, are devoted to wheat farming. Tasmania is too wet and little is done in Queensland owing to summer rains. The industry is flourishing, due partly to the ease with which sheep can be kept in the wheat belt, partly to the excellent harvest conditions and partly to the railway system which now gives few farmers more than a twelve miles' haul to the siding. Mechanisation is growing in regions where weed control is difficult or the instability of the weather at harvest time demands an intensity of labour, but for economical service the eight- or ten-horse teams still retain their place.

The main difficulty with Australian farmers is in making the crop pay whilst comparing favourably with prices obtained by the other great wheat-exporting countries. To meet this, poor soils are treated with high grade superphosphate to increase production, higher quality grains have been introduced and a system of bulk storage begun. Concrete silos have been erected in New South Wales, corrugated iron bulkheads in West Australia and concrete systems are in process in Victoria and South Australia.

About half of the wheat raised is exported in the form of grain or flour, the quantity compared with that of other countries being:—

Years 1935–36, in million bushels: Canada 254·1; Argentine 69·9; Australia 103·1.

5. Other crops.—Australia is the only country where *cane sugar* is produced by white labour. Along the hot, moist coastal fringe from the Richmond River in New South Wales to Port Douglas, Queensland, it is the chief crop of 10,000 farmers; and in Queensland, between Mackay and Cairo, whole towns are dependent upon it. Further south in the Murray basin and also in West Australia, *oranges* and other citrus fruits are grown, and the Mediterranean-type regions, especially the irrigated Mildura district of Victoria, are famous for their *vineyards*. In South Australia (by far the greatest producer), New South Wales and Victoria the industry in vineyard products has developed rapidly and the raisins, currants, table grapes and wines are largely exported to the United Kingdom. *Apples and pears* are grown in every state, especially in Tasmania and Victoria. Since the Empire Conference in 1936, when standards of quality were laid down and access to London markets shared so that there would always be a supply of fresh Empire-grown fruit available, trade in these is now firmly established.

Lastly, the export of canned fruit is of great importance. Apricots, pears, peaches and cherries, jams and jellies are among the products and from Queensland there is a steady trade in pineapples.

Statistics of exports in 1936

Pears	5,000,000 bush.
Apples	4,000,000 bush.
Sugar	400,000 tons
Canned Fruits	743,401 cases
Dried Fruits	46,853 tons
Wines	3,709,627 gals.

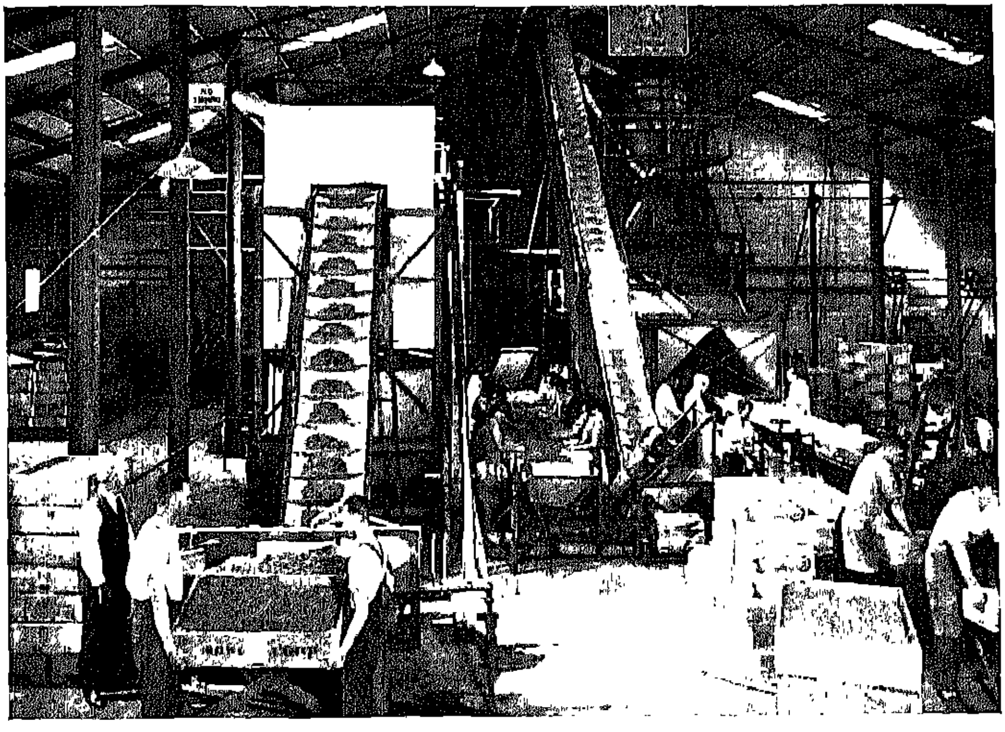

Plate XXXII. View of Mildura Co-operative Packing Shed, Victoria. Cleaning, Stemming and Grading Dried Fruit

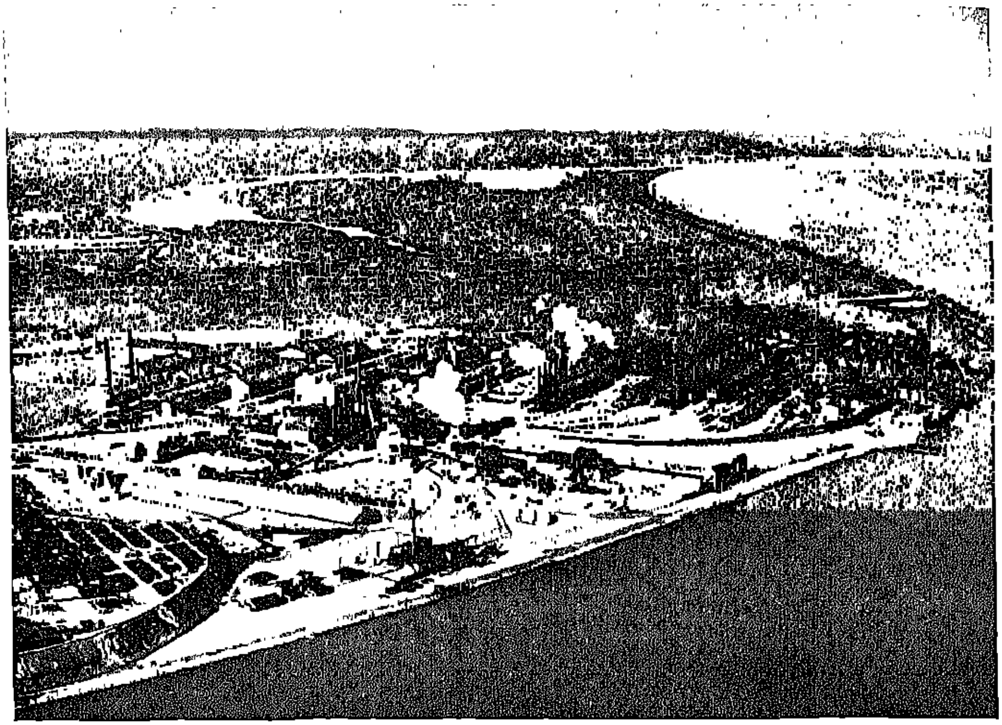

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PLATE XXXIII. STEEL WORKS, NEWCASTLE, N.S.W.

The forests of the continent are mainly confined to coastal districts, the continuity being broken by areas of poor soil. They are not luxuriant and careless destruction by past settlers has resulted in the need for strict economy to-day and also, particularly in New South Wales and Victoria, in a dangerous tendency for rapid aeolian erosion of the soil. The timber is mostly of a hardwood type, the karri and jarrah of south-west Australia and the giant eucalyptus of Gippsland, Victoria, being famous. Inland, the forests gradually pass into the savannahs and then into areas of mallee scrub, salt bush and spinifex.

6. Minerals.—Australia has been associated with *gold* ever since the days when thousands of new colonists sought for riches at the strikes in Victoria, Queensland and Western Australia. After many years of success a period of apparent exhaustion followed until Science discovered new means of extracting the metal from ores once discarded. To-day the industry is still healthy and upwards of ten million pounds' worth is produced yearly. Of this, Western Australia supplies 72 per cent with a weight of 846,000 oz., Queensland 121,000 oz., and Victoria 114,000 oz. Up to the end of 1936 it has been estimated that £A.664,000,000 worth of gold has come from Australian reefs.

The extraction of *base metals* is also an important industry but tending to decline although the output in 1936 was valued at nearly £9,000,000. Broken Hill, New South Wales, is outstanding as the centre of a remarkable deposit of silver-lead-zinc ore. Other districts in order of production are as follows:

Silver—lead—zinc	Queensland, Tasmania
Copper	Tasmania, Queensland.
Tin	New South Wales, Tasmania, Queensland.
Iron	South Australia.
Coal	New South Wales, Victoria.

Port Pirie, South Australia, is the chief centre for refining the ores from Broken Hill, the zinc concentrates being then despatched to Risdon, Tasmania, for recovering the metal by the electrolytic method. Newcastle, New South Wales, is the centre of the steel industry.

7. Secondary industries.—Following upon the development of natural resources, the growth of *factory industry* became an economic necessity to the well-being of the rising population. From 1900 a rapid change took place in the distribution of labour and now whilst 500,000 people are engaged directly in rural occupation, 520,000 work in factories. The latter are mainly concentrated in the large cities of Melbourne, Sydney and Newcastle, due to the presence of power resources (coal at Hunter river, New South Wales, and lignite at Gippsland, Victoria), and to conditions of stable productivity. Altogether there are now some 25,000 factories in the continent, 71 per cent being distributed through New South Wales and Victoria and the remainder in order through Queensland, South Australia and to a much less extent in Western Australia and Tasmania. Prominent amongst the manufactured articles are paper pulp and all types of papers and cardboard, machinery, textile goods including woollen, cotton and rayon fabrics, chemicals, electrical equipment, motor cars and aeroplanes, food products and many other necessities for the home.

8. Transport.—A good *railway service* now connects all the main towns with many

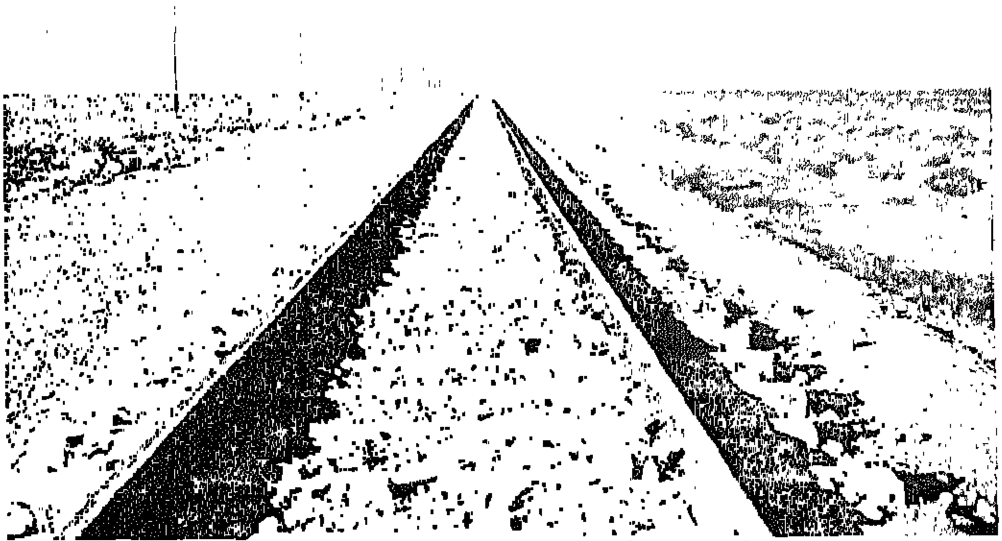

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PLATE XXXIV. 300-MILE STRAIGHT—NULLARBOR PLAIN TRANS-CONTINENTAL RAILWAY connections to "outback country" lines. In general, the system or rather the six state-owned systems (five in the mainland and one in Tasmania) follows the contour of the coast, extending from Cairo, Queensland, southerly and then westerly to Geraldton, Western Australia. No railway as yet runs from north to south, but from Darwin, Northern Territory, a line extends some 400 miles south and then is connected by telegraph to Alice Springs in the interior of the continent, and thence to Port Augusta and Adelaide. One drawback, not only to proper extension but also to continuity for passenger and goods traffic, is the existence of varying gauges in the States, to standardise which would be an exceedingly costly undertaking. Competition with road transport is a problem of recent years although every advance has been made with regard to engines and equipment of the most modern pattern.

With regard to *roads*, over such a vast area development is naturally slow. At present they can be divided into three classes: (1) The "outback" type where development is purely of a pioneer character and the going is frequently disastrous to the motor car. (2) Those in the settled rural productive areas where although the motor car has displaced the horse-drawn vehicle the surface is still mainly natural. Fortunately most traffic occurs at harvest and sheep-shearing time when the weather is dry and settled. (3) The modern type that occurs in areas of close settlement.

Altogether out of a total of some 470,000 miles of roads, 400,000 miles are still unmacadamised and only 500 miles are laid in concrete.

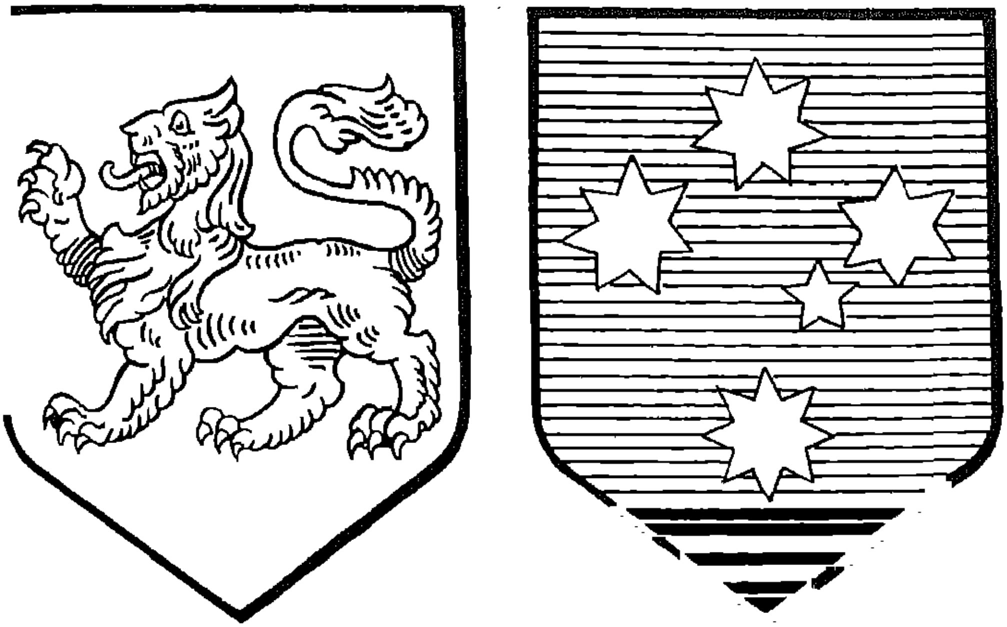
Air transport is eminently suited to a country such as Australia with its vast areas of "difficult" country. This has been fully recognised and an excellent system is now in service. To-day, 25,000 miles of route link the whole of the coasts, cross the continent and are invaluable in conveying passengers and freight to and from mines and outback settlements. A distance of 10,000,000 miles is covered annually by aircraft, examples of the services being Perth–Adelaide; Darwin–Adelaide; Sydney–New Guinea; Brisbane–Singapore; Brisbane–Sydney–Melbourne–Adelaide; Sydney–Auckland (New Zealand) and daily from Melbourne to Hobart.

9. Ports and overseas trade.—All the great capital cities of Australia—Brisbane, Sydney, Melbourne, Adelaide, Perth and Hobart with Darwin as the administrative centre of Northern Territory—are seaports with the exception of Perth, which has Fremantle, and Adelaide, which has Port Adelaide. Of these, Sydney is the greatest with a port traffic equal to one-third of that of London, and Melbourne second, with a quarter of the volume.

Trade since the extremity of the depression in 1931–32 has made a remarkable recovery. In 1937 some twenty shipping lines brought 11 million tons of cargo from Europe, Asia and America and a fleet of 5,000 vessels was engaged in interstate coastal traffic. Exports of the year amounted to £A.146,000,000 (50 per cent approximately to U.K.) and imports to £90,000,000 sterling (40 per cent from U.K.) giving a surplus balance of about £35,000,000 sterling.

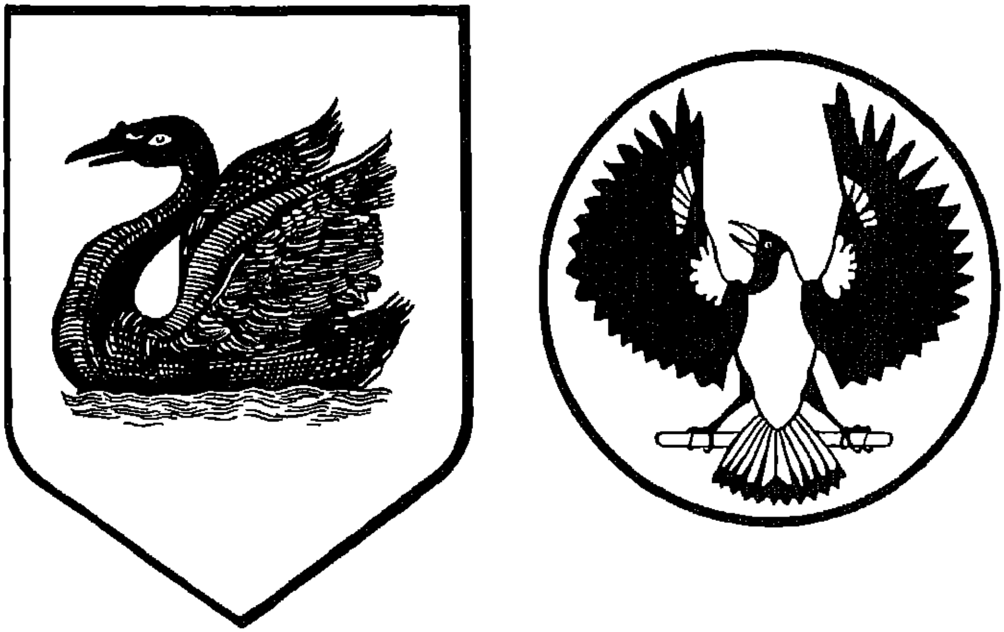
It can thus be seen that Australia may be proud of her position in the Empire. There is yet one problem to overcome; her population of nearly seven millions is quite inadequate for such a vast dominion. National pride in the soundness of the 95 per cent of British stock seeks to retain that proportion but it has been found very difficult for adult emigrants to succeed in a country where conditions are totally different from those experienced in England.

At present the best solution to the problem appears to be in the foundation of schools such as the Fairbridge Farm School for child emigrants where children gradually become accustomed to the Australian climate and outlook before venturing on their own account.



Tasmania

Victoria



Western Australia

South Australia

Coats of Arms

New Guinea.—New Guinea, separated from Australia by shallow seas, is traversed by mountains and experiences an equatorial climate. The inhabitants, Papuans, a woolly-haired race, cultivate crops such as coconuts, bananas and sago, or live by fishing. Over 14,000 natives are employed by the European population of some 1,200 and important exports are coconut products, gold, rubber, and trochus shell.

The region consists of three political units. The western part is a Dutch colony; Papua in the south east is ruled directly by Australia; whilst a former German territory in the north east is now administered by Australia under a mandate from the League of Nations. Port Moresby, the chief port, is linked with the mainland by sea and air lines. (See First Year's Course, Lesson Unit VIII.)

Memory work.—1. The chief credit for linking Australia to the British Empire belongs to Captain Cook who discovered the position of the continent, and to Matthew Flinders who determined its shape.

2. Colonisation, at first, spread from a convict settlement on the east coast but did not extend far westwards owing to the mountains.

3. Great numbers of people came with the gold rush to Victoria in the year 1851 and then over thirty years later to Western Australia.

4. The foundations of success were laid by the successful breeding of merino sheep (now 115 millions in the Dominion).

5. A dominion is an independent country of the British Empire that governs and supports itself without any outside help. The king is represented by the Governor-General.

6. The Australian natives or aborigines are dying out as they cannot live *naturally* amongst white people.

7. A great variety of products can be grown in Australia; regions of tropical, Mediterranean and warm temperate types of climate exist in the continent.

8. Gold of great value is still mined in Australia but it now is extracted by chemicals from rock and is seldom found in the pure state.

9. Nowadays as many people earn their living by working in the factories of big towns as are occupied in the farming lands.

10. Although Australia badly needs more British people, it is difficult for adult emigrants to succeed unless they become used to the climate quickly and learn new ways of living and farming quite different from those in England.

Activities and exercises.—1. *Questions.*

(*a*) It is a risky thing to introduce new creatures into Australia uncontrolled, because they often become pests. Why is this?

(*b*) What is there particularly clever in the make and use of a boomerang?

(*c*) Why were many of the early colonists called squatters and why are Australian tramps known as sundowners?

(*d*) There are large openings in the Great Barrier Reef through which ships can pass. They were not worn by the sea, so why was coral not formed at these points?

(*e*) How do people know where to look amongst the rocks for gold?

(*f*) What is the real value of building silos in such great areas as Australia? What types of silo are used in England?

(*g*) How many towns can you find in Australia named after those in the British Isles?

(*h*) What is the difference between £ sterling and £ Australian?

2. Draw up a poster inviting new colonists to Australia. Be sure to represent without overcrowding the opportunities the continent offers.

3. Make a coloured diagram of Australia's chief imports from and exports to the United Kingdom for a year. The figures represent approximately the value in thousands of £'s.

Imports.—Machinery 1·9; iron and steel goods 2·9; motor cars and parts 1·6; chemicals 1·5; cotton goods 5·3; woollen goods 1·1; paper and books 2·2; artificial silk 1·1.

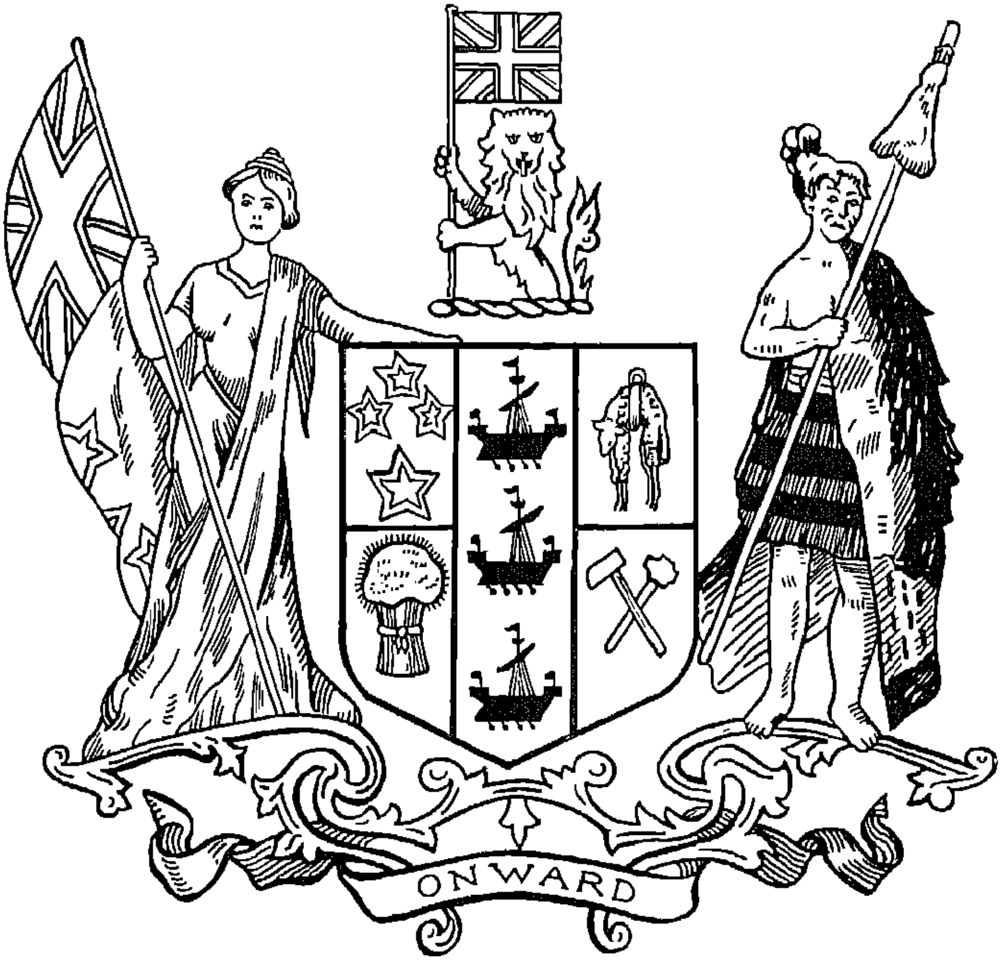
Exports:—Butter 7·2; wheat and flour 6·4; mutton 4·2; apples 1·6; beef 2·1; wool 14·3; lead 1·8; rabbits ·5.

4. Australia offers many subjects for handicraft projects. One of the best might illustrate Australian life from the stockman or miner in the outback to the dockside worker in Sydney. From tropical heat to temperate warmth includes a great range of activities for models, pictorial maps, collections, etc.

5. Write a description of a railway journey from Perth to Brisbane. Look up the route on a map, find out the length of time it takes and then from your knowledge of Australia give an idea of the great stretches of country and the notable changes in scenery.

LESSON UNIT III—NEW ZEALAND

Introduction.—A study of New Zealand follows naturally upon that of Australia, a ready approach being offered by the similarity



Coat of Arms of New Zealand

in geographical position, history of colonisation, and in certain forms of life, whilst contrasts occur in point of size and in the general type of climate as opposed to a variety of conditions.

If a study of the British Isles has been undertaken at a previous period, the position of these islands in the northern hemisphere forms a convenient means of comparison with that of New Zealand in the southern. Following upon this, known facts of relief and climate can be readily applied and the effects deduced upon a country much less disturbed by the complexity of conditions existing in the old world.

The notes for reference in this section follow natural regions rather than climatic, the climate being more generalised and the former not likely to cause confusion by their number as in the case of large areas.

As with Australia, it is important for the children to understand the independent outlook of the people of this Dominion, but a feeling that is infused with loyalty to the British Crown and pride in their membership of the British Commonwealth of Nations.

Historical aspect.—Although climatically more favourable for the white man than Australia, remoteness in the days of the sailing ship kept New Zealand in obscurity for many years. Tasman chanced upon the islands first in 1642 but it was left to Capt. Cook (1768–1780) to map the coasts. Even so England would have nothing to do with the land and it was left excepting for occasional visits of sealers and whalers and then missionaries until the middle of the nineteenth century. In 1840 interest was aroused and an expedition sent to pacify the natives and annex the country to Australia. As new colonists arrived, disagreement over land purchase caused serious warfare but eventually peace was restored and government began to take shape. The gold rush of 1861 brought a great increase in the white population and through many vicissitudes the new country gradually won its way to prosperity and dominion status in 1931.

Natural aspect.—1. Physical.—The islands lie 1,200 miles south east of Australia on a steep submarine ridge which divides northward into three branches, one connected with New Caledonia and New Guinea, another with the New Hebrides and the Solomon Islands, and the third with the Fiji and Tonga Islands.

The main mountain chains which run from north east to south west are comparatively recent, and consequently the region is subject to volcanoes and earthquakes. There is a large volcanic plateau between the fold mountains of North Island and the ancient Auckland Peninsula, rock similar to the latter also being found in the Otago plateau of South Island.

Lastly there are the alluvial plains which are not very extensive, the chief being the Canterbury Plain of South Island.

The coast line of New Zealand shows very varied methods of formation. The southern part of Cook Strait and the Auckland peninsula are good examples of fault coasts where the sea has filled up the sunken areas giving an indented coast line. The south-west coast of South Island is a typical fjord coast, caused by glacial erosion combined with faulting. Finally, the west coast of North Island and the east coast of South Island are good examples of coast lines formed by the deposition of sediment.

Lakes are numerous in both Islands. Those of North Island occupy craters of extinct volcanoes or were created by lava-flows lying across the valleys. In South Island they are generally glacial in origin and are found in hollows or in moraine-dammed valleys.

Most of the volcanoes in Northern Island are in their final stages of activity and take the form of geysers and hot springs, whilst others such as Mount Egmont are now extinct.

2. Climate.—New Zealand is a typical example of a country having an insular temperate climate. Conditions are mild and equable, with a range of only 10° between summer and winter heat, and are eminently suitable for white people. Rainfall is moderate and occurs at all seasons with the west of South Island having the heaviest since in this part the prevailing *westerlies* have to cross the Southern Alps.

3. Native life.—As in Australia, long separation from the rest of the world has resulted in many unusual features:

(*a*) *Vegetation.*—The appearance of the flora lends the scenery a character entirely of its own. The once-luxuriant evergreen forests have been ruthlessly destroyed in many parts by early settlers but red and white pines and evergreen beeches are characteristic of South Island, and kauri pines (a valuable commercial timber) and tree ferns of North Island. In the drier eastern plains of South Island coarse grass has now been replaced for grazing purposes by European varieties but in similar regions in North Island bracken and fern forests are still widespread.

(*b*) *Animals and birds.*—Animals are extraordinarily rare, the only ones in existence being the wild descendants of Maori dogs and rats until the introduction of the European sheep, horse, cow, dog, etc. Birds are more numerous; the flightless kiwi and kakapo are still found and also the kea, an Alpine hawklike parrot, and coastal ones, such as the penguin and cormorant.

(*c*) *Man.*—The Maoris of New Zealand are a fine, intelligent race coming from seafaring Polynesian stock who made a general settlement on the islands during the fourteenth century. In many respects they had reached a fairly high standard of civilisation before the arrival of the white man. Their social organisation under chieftains, their method of cultivation and their artistic ability were all well advanced. At first, to prevent confiscation of their tribal lands, they put up a spirited resistance to the invasion of the whites; but they have now settled down amicably and have taken advantage of the educational and other facilities provided so that they now play an important part in the life of the Dominion, including among their ranks many notable doctors, lawyers and cabinet ministers.

To-day the Maori population numbers some 80 thousands compared with 1½ million whites, the tendency being for an intermingling of the races eventually.

Regional study.—For convenient study the six well-marked natural regions of the country will be taken in order, the first four being in North Island and the others in South Island.

1. *The highland area.*—The region, sparsely populated, is mainly devoted to sheep rearing and is served by the port of Napier.

2. *The Auckland peninsula* is the warmest region of New Zealand and fruits of Mediterranean type—oranges, lemons and grapes—are common. Dairying is very important owing to the suitability of the climate and the volcanic soil. The farms, usually less than 100 acres, are organised on highly scientific lines, and by means of a co-operative system of marketing the export of butter and cheese has become second only to that of Denmark and Holland respectively. Two-thirds of British imported cheese now comes from New Zealand and one-third of the butter.

Other products of the region are gold, found in reefs; Kauri gum, dug from the earth as the fossilised remains of ancient forests; and phormium, a native flax from marshy districts that is used for the manufacture of rope and twine.

Auckland, the centre of the region, is the largest town in New Zealand. It has a waterfront on both coasts and is an important seaport with ships coming from Sydney, Vancouver and Panama. It exports dairy produce, mutton and wool.

3. *The volcanic area* is an economically unimportant region owing to the poverty of the dry, infertile soil.

4. *The Wellington plains.*—Dairying is again the most important occupation here,

the chief centres being Wanganui, New Plymouth and Palmerston North. Wellington, the capital of New Zealand, is the chief port and shares most of the foreign trade with Auckland.

5. *The Southern Alps.*—This region of folded mountains is thickly forested on the windward slopes owing to the heavy rainfall. Hydro-electric power is among the chief resources of this region, its development having been facilitated by the numerous waterfalls and the lakes, which act as natural regulators. Dairying is being developed on the Westland plains, and the coalfields round the ports of Greymouth and Westport give rise to one of the largest industries in the country.

6. *The plains.*—These can be subdivided into four areas:

(*a*) *The Otago plains* formed of ancient rock permit sheep rearing in the hilly areas and arable farming on the lowlands. Wheat, oats, barley and fruits are grown in the valleys, irrigation being sometimes necessary. Dunedin is the port for this region.

(*b*) *The eastern coastal plains.*—These provide not only some of the most famous sheep pastures in the world (Canterbury district) but also the most important arable region of New Zealand.

Scientific breeding and the provision of suitable fodder crops have brought the sheep-rearing industry to the fourth place among the world's producers. Over 31 million animals are kept in the country and the production of wool (130,000 tons) compares very favourably with Australia's 440,000 tons. Mutton and lamb exports also supply half the requirements of the United Kingdom.

Wheat is the most important cereal and 80 per cent of the total crop of New Zealand is produced in this part, a high yield per acre being obtained.

Christchurch with its port of Lyttleton is the chief centre of the area and is a finely planned modern city.

(*c*) *The Banks peninsula* is a district of heavier rainfall and dairying is accordingly more prominent.

(*d*) *The northern plains* around Nelson and Blenheim form the final section. Sheep and cattle rearing are again the main occupations though apples and pears are exported in considerable quantities.

General notes.—In general, New Zealand is a small and wealthy country eminently suited to agricultural and pastoral production. Her export trade, the largest in the world per head of population, is very largely dependent upon the results of dairying and sheep rearing, and her purchasing power upon the prices received in world markets. The fluctuations of recent years have demanded a closer attention to home manufactures and consequently many secondary industries are now in operation, so that with the exception of such articles as steel, cotton goods, rayon fabrics, porcelain, rubber tyres and complicated machinery she is now self-supporting.

SOME STATISTICS FOR THE YEAR 1936–37

GENERAL ITEMS		IMPORTS IN MILLION £		EXPORTS IN MILLION £	
Factories	5,538	Motor cars & parts	5·5	Wool	13·3
Wheat (bush.)	7,168,963	Iron and Steel	4·7	Butter	15·3
Oats (bush.)	3,525,430	Machinery	3·1	Frozen meat	13·2
Cattle	4,389,101	Electrical Machinery	2·4	Cheese	5·1
Pigs	802,419	Textiles	6·4	Hides and Skins	3·3
Horses	277,799	Oil and Petroleum	2·4	Gold	1·4

Memory work.—1. New Zealand is very young as a nation, as real colonisation did not begin until the middle of the nineteenth century.

2. East Cape is almost 180° longitude, that is, halfway round the world from Greenwich.

3. North Island is famous for its many volcanoes, geysers and hot springs. Rock of *recent* formation is often like this.

4. The climate is somewhat warmer than that of Great Britain and the *brave west winds* bring more rain to the west of South Island. Otherwise both countries are insular and temperate and therefore much alike.

5. The natives or Maoris are an intelligent people and some can take their place equally with the white man.

6. At present New Zealand is mainly a sheep-rearing and dairying country. Coal mining in South Island is a very important industry.

7. The chief exports to the United Kingdom are butter, wool, frozen meat (mutton and beef), cheese, hides and skins, and gold.

Activities and exercises.—1. *Questions:*

(*a*) Write down the latitude of Great Britain and also that of New Zealand. What fact of climate do these results tell you?

(*b*) When it is said that rocks are *recent*, about how long ago does this mean?

(*c*) You do not hear much about New Zealand rivers. Why is this?

(*d*) Why are there few towns on the west coast of New Zealand?

(*e*) What well-known product has the kiwi as the trademark?

(*f*) Can you think of a reason why there are no native wild animals in New Zealand and yet plenty of birds?

(*g*) What are the *roaring forties?*

(*h*) What month is harvest time in New Zealand?

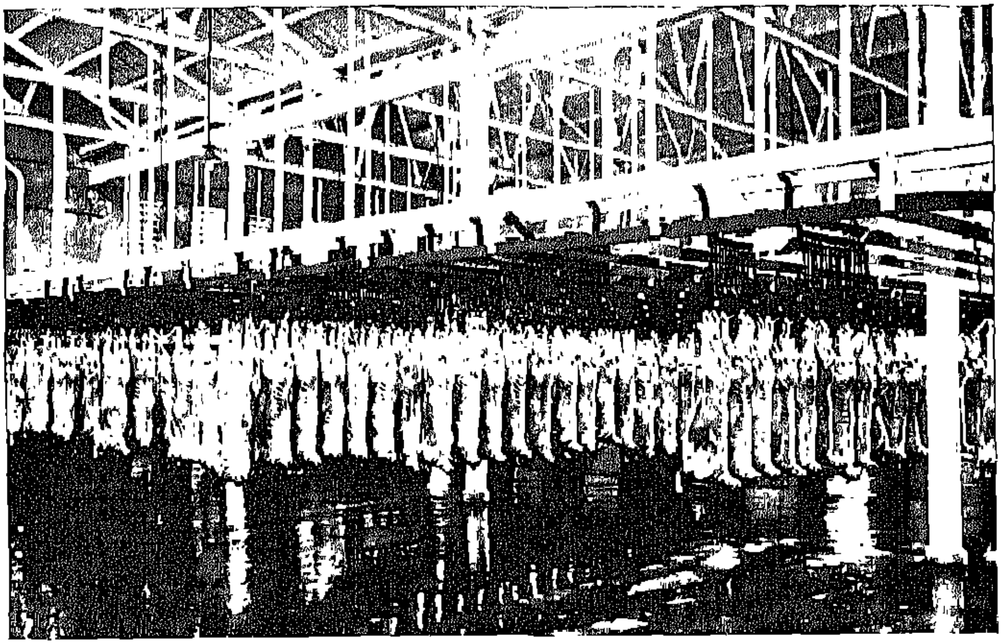


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PLATE XXXV. MEAT IN COLD STORE

2. Make two coloured diagrams, one showing the chief imports and the other the exports of New Zealand (details in text).

3. For handwork, here are two projects: (*a*) A group of models in plastic material indicating *geyserland* and including active and extinct volcanoes, hotsprings and geysers; (*b*) a series of models showing the value of the kauri pine. From the wood of the latter, boxes and cases for butter, cheese and apples are made and the gum is used in making varnishes, linoleum, etc.

4. Draw a map of the Pacific Ocean to show the main trade routes connected with New Zealand. Here are some facts as a guide; the figures represent approximate mileage: Auckland–Honolulu (4,700); Honolulu–Vancouver (2,790); Wellington (Auckland)–Panama (7,570); Wellington–Southampton via Cape Horn (13,660); Wellington–Melbourne (1,520); Auckland–Sydney (1,500); Auckland–Fiji Islands (2,000).

5. Write an article for the school magazine or the geographical circle contrasting the two races, Maori and Aborigine.

LESSON UNIT IV—THE UNION OF SOUTH AFRICA

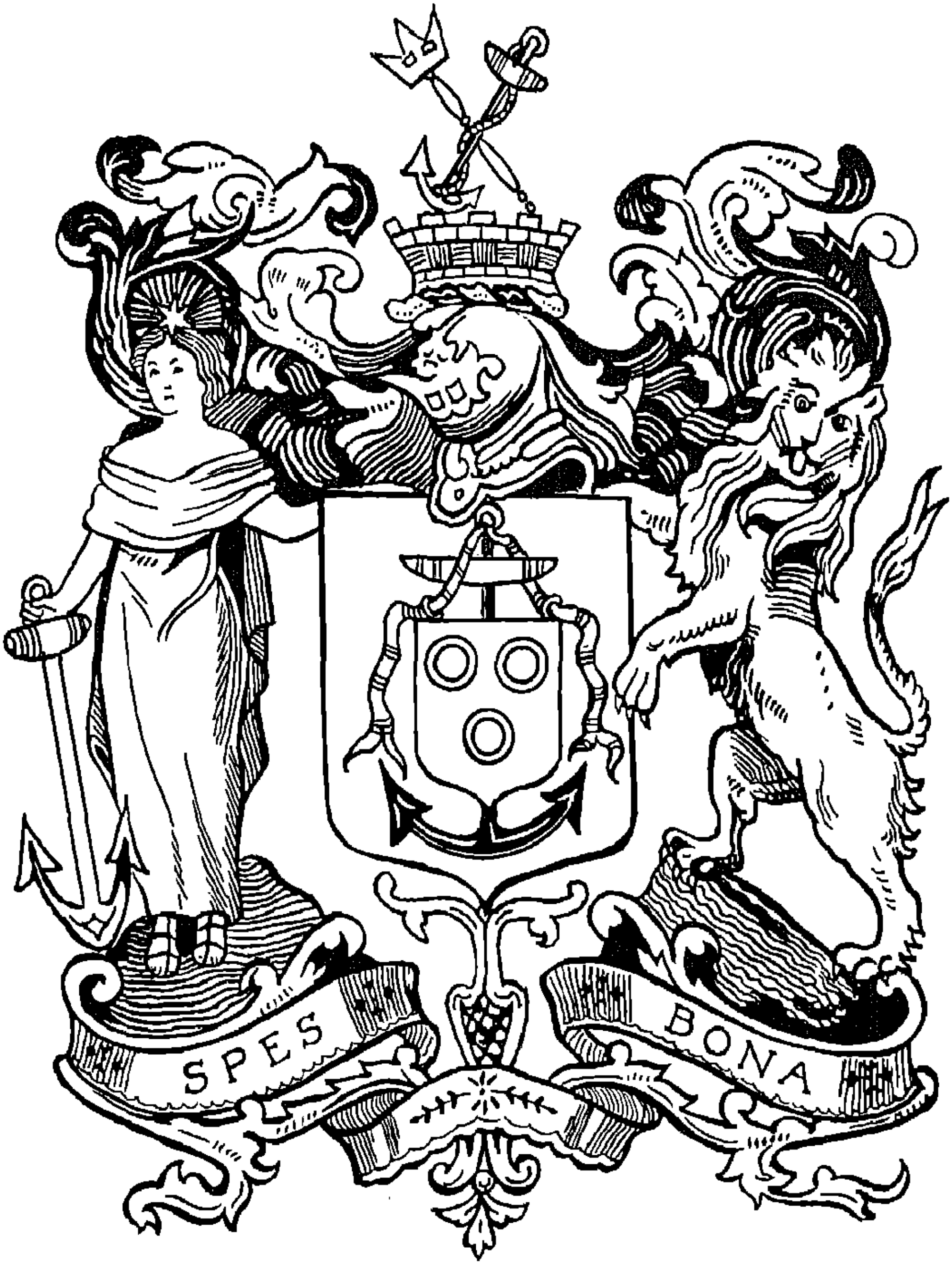
Introduction.—In this lesson unit, besides those for the Union of South Africa notes have been given dealing with outside territories. This is in order to permit a comprehensive survey, if desired, of a complete area in which conditions of living are in many ways identical.

South Africa in her historical development is different from all the other dominions, three separate peoples, each of great importance, being concerned in the achievement of the present day.

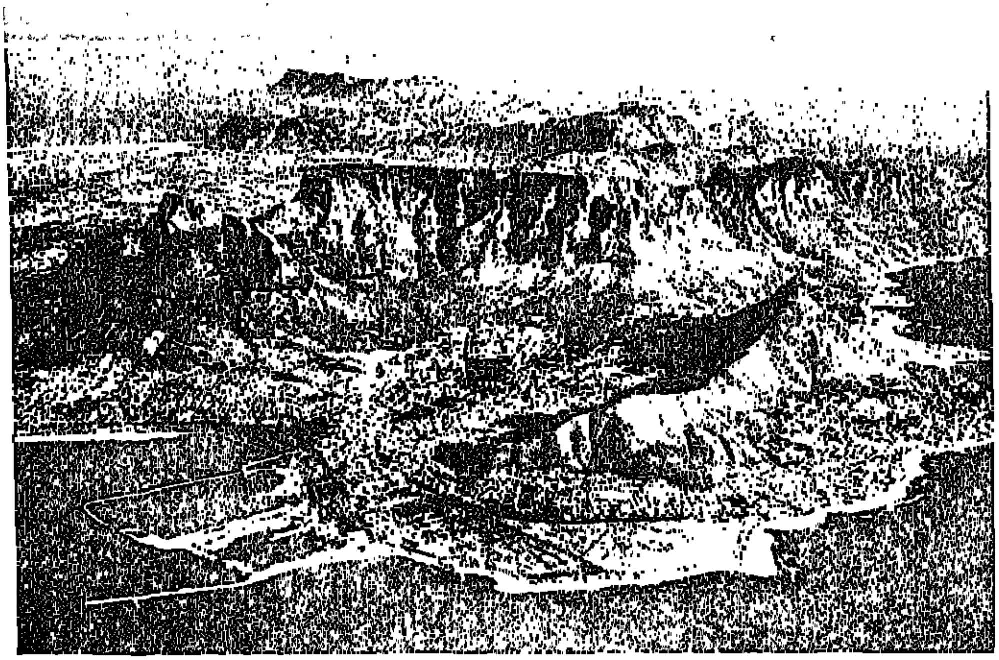
As a means of study different from the ordinary approach through natural regions, the characteristics and work of each race might be followed leading to the welding together of the more influential sections and the birth of a new nation. Thus a study of the rural Afrikaner, illustrated by farming life in the dorps, would show his conservative frame of mind, his contempt for disturbing innovations and his traditional apprehension of the natives, taken altogether a very strong force in the destiny of the country. At the opposite pole the modern outlook can be observed in the highly organised fruit and sheep farms with their irrigation and schemes to satisfy the demands of foreign buyers, or in the activity of the mines and industries with the uprising, well-planned towns fully equipped and served in the most up-to-date manner. Lastly, the position of the natives affords a very interesting study. On the one hand is found a sprinkling of highly educated men and on the other a great mass of ignorant unskilled workers. Many live in their own villages near to the traditional habits of their forefathers; many work upon farms and in the mines and homes of white men. The opposing attitude of the white people can be observed from the following conditions on two neighbouring farms. On one of them the farmer at his own expense had built a school for native children in which his wife weekly gave many hours of unpaid service. The other was offered for sale and the following advertisement appeared in the newspaper: "Lot 28. Piggeries and Kaffir quarters. The piggeries are in excellent condition."

Historical aspect.—The Union of South Africa represents the only dominion of the British Commonwealth in which white settlement was already well developed before the advent of the British colonist.

For many years after the famous fifteenth century voyages of Bartholomew Diaz and Vasco da Gama to the most southerly point of Africa, the Cape (Plate XXXVI) was regarded mainly as a useful halfway port of call for Portuguese and Dutch shipping to the far east. Then in the seventeenth century the Dutch formed a trading settlement that gradually developed into a farming area in which the unskilled labour was performed by native slaves. During the war with Napoleon, England decided to wrest the



Coat of Arms of Cape Town



[*Reproduced by courtesy of H. Duncan Abraham, Esq.*

PLATE XXXVI. CAPE PENINSULA, WITH CAPE TOWN AND TABLE MOUNTAIN

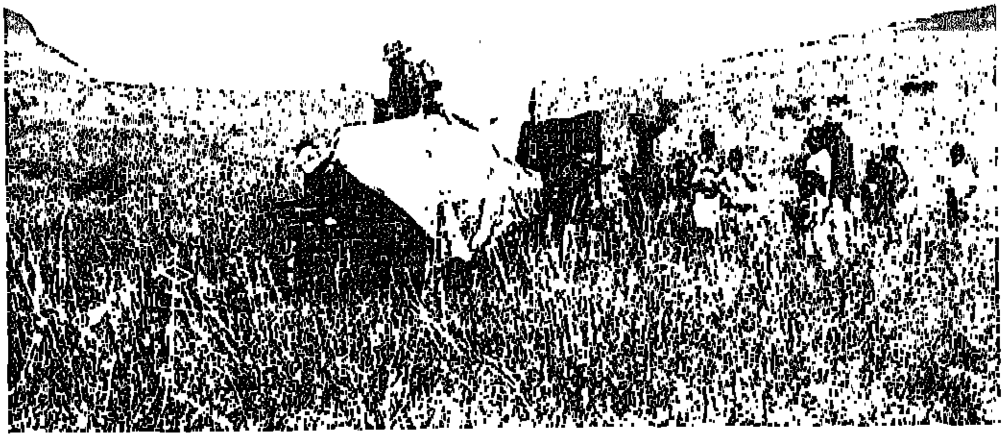
colony from the Dutch allies of the French as a valuable stage in the route to India, and after the peace of 1814 it was purchased from Holland for £6,000,000. Trouble quickly arose through misguided methods of control and failure to agree with the colonists' attitude towards the natives. The abolition of slavery with inadequate compensation was the culminating point and in the Great Trek of 1835–1837 some 10,000 Dutch farmers or Boers determined to risk native hostility rather than put up with the hated British rule. Independent republics were formed known as the Orange Free State, the Transvaal and Natal, but the needs for defence against the warring natives and the bad treatment of incoming British colonists, especially after the discoveries of diamonds in 1867 and the rich gold deposits in 1886, made British interference necessary. War was the inevitable outcome and though eventually the Boers were defeated, the very wise step was taken of granting them self-government. This led to far more amicable relations and in 1910 the four provinces united to form the Union of South Africa, now enlarged by the mandated territory.

While political unity was shaping, David Livingstone between the years 1849 and 1873 was carrying out his memorable work in solving much of the geographical mystery of Africa. His crossing of the Kalahari Desert, the exploration of the Congo Basin and the discoveries of Lake Nyasa and the Victoria Falls are landmarks in the history of the development of the country.

To-day, the country's prosperity bears testimony to the tremendous enterprise of the colonists in developing the immense natural riches that seem as boundless as the veld. The achievement is a tribute to the successful unity of the two races now firmly welded and imbued with the common desire to build their own nation and solve their own problems.

Natural aspect.—1. Physical.—As a whole, South Africa is an elevated region rising in terraces from a narrow coastal plain to a high plateau, notable for its undulating plains broken by flat-topped, steep hills and its eastern rim of high mountains, the Drakensberg. Numerous rivers find their sources among the irregular formations of hills and as they leave the plateau for the coast waterfalls prove a severe handicap to navigation. The *Zambesi*, which is the most important river, is navigable in different sections separated from each other by falls or rapids. Of these the Victoria Falls, 357 ft. high and about a mile wide are the most famous. The Limpopo is navigable only for the last hundred miles of its course and the lower course of the Orange river lies in a desert region where most of the water is lost by evaporation.

2. Climate.—Most of South Africa lies in the south-east trade-wind belt all the year. This results in the east coast having a heavy rainfall whilst the west is occupied by the Kalahari Desert. The warm Mozambique current which runs down the east shores increases the humidity of this part but on the west coast the cold Benguela current flowing north increases the aridity of the desert coasts, since any winds blowing inland are robbed of their moisture in passing over cold water. Such precipitation as there is generally occurs in the form of fog. The plateau gets most of its rain in



[Reproduced by courtesy of the High Commissioner for Southern Rhodesia.

PLATE XXXVII. THE VELD, SOUTH AFRICA

summer when the high temperature causes low pressure which draws the damp trades further inland. The district immediately round Cape Town experiences a Mediterranean type of climate as in winter the westerly wind belt covers the area and brings rain.

Temperature which does not vary very greatly between summer and winter is fairly uniform over the whole area as the effect of closer proximity to the equator is counteracted by increasing elevation towards the north. South Africa is famed for its sunshine, eight or nine hours a day being usual all the year round. Distance from the sea, however, results in many parts of the interior having a large diurnal range of temperature and night frosts are common.

3. Native life.

(*a*) *Vegetation.*—Owing to the low rainfall and the rapidity of drainage and evaporation, South Africa has few forests, the greater part being covered with various types of grass or low bush. The variety conforms with well-marked climatic regions that may be conveniently divided as follows:

(i) The evergreen forests of Mediterranean type, though similar in species to that of south-west Australia, that clothe the seaward slopes of the Cape Province ridges.

(ii) The sub-tropical forests of the wetter coastal belt stretching from Port Elizabeth through Natal and Zululand, but now largely destroyed to make room for plantations of sugar cane, bananas and oranges.

(iii) The tropical grass and savannah land of the northern Transvaal where the trees include species of mahogany, baobab, and acacia with palms in the river valleys.

(iv) The temperate veld of the southern part of the plateau where the rolling grassy plains have been found well suited for cattle and sheep rearing and the wetter parts for the cultivation of maize.

(v) The desert and semi-desert areas. In this region three distinct types are prominent. Firstly, there is a part of the *Kalahari* with a rainfall of from 5 to 15 in. a year that supports coarse grass, scrub, and succulent plants such as euphorbia and aloes. Sheep and cattle of a poor quality are pastured in favourable districts. Secondly, there is the *Namib* or western coastal desert which is the most arid of all; and lastly, there are the dry plateaux known as the *Karroos* which receive thunder showers in summer causing a quick growth of grass and a brief flowering of bulbous rooted plants. Otherwise there is little vegetation but thornbush and other drought-resisting plants.

(*b*) *Animals and birds.*—South Africa abounds in wild life though the larger animals are becoming more and more confined to the four great national parks, of which the Kruger National Park of the north-east Transvaal is famous. The lion, elephant, leopard and zebra are frequent; also the crocodile north of the Tugela river. There are no bears or deer but many varieties of antelope ranging from the tiny mipiti to the eland. Two animals peculiar to the country are the springbok and the black wildebeest. Monkeys and baboons are common, the jackal and Cape hunting dog represent the canine race, and the curious aardvark is frequent. There are over 350 species of reptiles in the country and thousands of insects including the mantis (the Hottentot god), the termites and tsetse fly. Of the birds, the European migrants are well known; others include the jackass penguin (representing the Antarctic regions), the secretary bird (protected for its snake-killing habit), the ostrich and many varieties of parrot, hornbill and birds of prey.

(*c*) *Peoples.*—The most primitive native races are the Bushmen, who were probably the first inhabitants of South Africa but who are now confined to the deserts of the south west where they depend on hunting for a livelihood; and the Hottentots, who live on the desert margins of the Kalahari where they engage in cattle rearing and a primitive form of agriculture.

Far more advanced are the 6½ million Bantus who were invaders from the centre of the continent and include many peoples such as the Zulus (Plate XXXVIII), the

Bechuanas and the Basutos, and who live by cattle rearing and agriculture. These people are now largely confined to reserves, which are constantly overflowing owing to increasing population and to the primitive methods of farming employed by many of the natives and the consequent waste of land.

Then there are about 770,000 people of mixed blood descended from Hottentots, Indians, negroes and whites, and some 220,000 Asiatics, mainly Indians, who came in as labourers in the nineteenth century to work on the sugar plantations. Most of the last named live in and around Durban and exist by farming and shopkeeping.

Finally there are just over 2,000,000 white inhabitants of British and Dutch descent. The latter speak a form of Dutch known as Afrikaans.

The "native" question is one of the most serious problems facing the Union to-day. Fearing disastrous consequences to white civilisation if the negro is given political and social equality, the present policy of the government is to exercise a wise guardianship over the native and to help him to develop to his fullest extent but along his own lines

(Reproduced by courtesy of South African Railways.

Plate XXXVIII. Zulu Chief

Modern aspect.—Although the material prosperity of South Africa to-day depends to the greatest extent upon her mineral wealth, *70 per cent of the population is* directly concerned with the primary industry, and consequently the first study will be of the outlook upon (1) pastoral, and (2) arable farming.

1. Pastoral farming.—As with Australia, the dryness of the climate is particularly suitable for sheep and over 30 million animals are reared mainly in Cape Province, the Orange Free State and southern Transvaal. The quality of the wool has been greatly improved in recent years and to-day South Africa *produces one-tenth of the* world's supply valued at nearly £10,000,000 annually. A large number of goats reared in the Karoos also produce a valuable supply of mohair for export.

Cattle breeding is by no means so advanced although some 11,000,000 animals are kept partly for dairying and partly for beef. The best ranching areas are in northern and eastern Transvaal but the industry is handicapped by poor pastures, long distances to exterior markets and numerous diseases and pests. Then again, half the cattle are owned by Bantus who regard them numerically as wealth and are not concerned about their wretched quality. However, there is a considerable export of hides and skins and also a quantity of butter, cheese and beef after supplying home demands.

2. Arable farming.—Although only 5 per cent of the total land is at present under the plough owing mainly to the low and erratic rainfall, a large mountainous area and regions of poor soil, the districts cultivated show great prosperity. Maize, the main food supply of the natives, is by far the most important cereal and is widely grown in the Transvaal and Orange Free State with lesser quantities in the other provinces. The wheat area is mainly confined to Cape Province and the Orange Free State, not enough of the crop being grown to permit export.

Fruit growing is of first-rate importance, especially in the Mediterranean region, and now that a pre-cooling system has been established at the large ports of Cape Town, Durban and Port Elizabeth, export has made great advances in recent years. Citrus fruits—orange, grapefruit, lemon, tangerine (naartje)—are the most prominent; deciduous types such as the plum and pear are common and sub-tropical species grow in Natal. Grapes form a crop of special value, the wines of South Africa, developed from the early days of settlement, being of high standard. Lastly, the sugar cane of Natal is now so well developed that a large surplus is available for export, mostly to the United Kingdom. Taken altogether, fruit growing shows great prosperity, the congenial climate and the abundance of cheap native labour being prominent factors.

3. Mining and manufactures.—There is but little doubt that South Africa owes her present development to the capital provided by her extraordinary mineral wealth. No less than 1,800 million pounds sterling has been the value produced up to 1934; of this, gold takes first place with 1,400 millions, diamonds next with 317 millions, the remainder being largely made up by coal.

The gold discoveries occasioned no "rush" in South Africa as in that country the mineral cannot be worked by individuals but requires large capital expenditure for labour and mechanical devices. A description of mining at the famous sixty-miles chain of mines of the Witwatersrand is given in the first-year course.

Native labour is largely employed, the men being engaged for a period of six months and paid at the rate of two shillings to two and tenpence a shift. Food and quarters are provided free and recreation and amusement (within the compounds) are catered for during the term of service. To-day the production has by no means reached its zenith. New mines are being opened and it is estimated that the present rate of extraction is possible for at least another decade.

Kimberley is the centre of the world's diamond supply but the stones also occur in several other districts, notably around Pretoria where the great Cullinan, weighing 1¼ lb., was found, as well as the Jonker, the fourth largest in the world. In the former district the diamonds are extracted from hard blue rock of volcanic origin that is raised from mines over 1,000 ft. deep in places. Owing to the cost of production and the proportion of stones to rock raised varying in weight between 1 : 10 millions and 1 : 70 millions, the price is kept at a high level by severely restricting the supply.

South Africa is fortunate in possessing an abundance of cheap coal, the largest fields being in the Transvaal, Natal and the Orange Free State. Some 13 million tons, valued at 3 million pounds, are mined annually, the result being seen in a tremendous grid system of electricity over the major centre of the Union, the electrification of many miles of railway and a rapid development of industries. Iron and steel production are particularly well advanced, the works at Newcastle and Vereeniging (Transvaal) being of great importance.

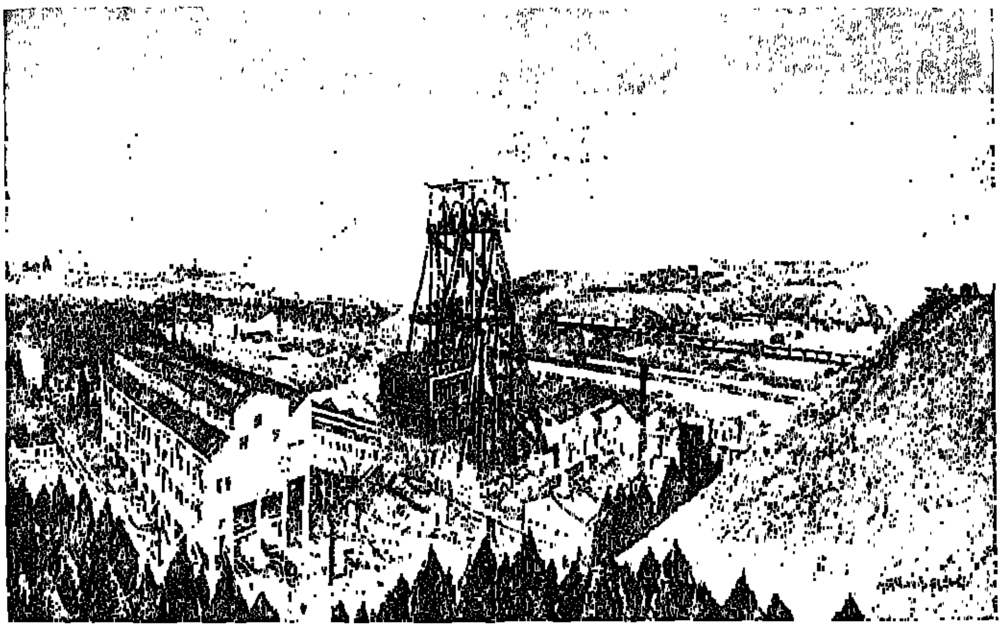


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PLATE XXXIX. A GOLD MINE ON THE RAND

Surface workings on the Crown Mine, Johannesburg

4. Communications.—Over such a vast area as the Union the surface of most roads must needs be of a natural type, kept unusually serviceable for motor traffic between the busy modern towns by the dry climate. In the *dorps* or country villages the Afrikaner still preserves the habits of past generations and the white-hooded ox waggon rumbles along with a small native piccaniny as *voorloper* at the head of the team of sixteen oxen. On the driving seat the farmer wields his great hide whip (the bamboo handle is 12 ft. long) and inside his wife is seated, dressed as of old in a voluminous black frock with a white *kappie* or sunbonnet as a headdress.

Railways under state control provide an excellent service, covering 13,000 miles between the towns together with 11,800 miles of motor transport services as links with every community of any importance. To-day, the most modern devices are used for the speedy handling of goods and the comfort of passengers, and the journey from Cape Town to Johannesburg (1,000 miles) is now accomplished in twenty-five hours. Two main arteries run from south to north; firstly, the one from Cape Town through De Aar, Kimberley, Mafeking and through Rhodesia; and secondly, the line from Port Elizabeth through Bloemfontein, Johannesburg and Pretoria into the western Transvaal.

From east to west the chief routes are, firstly, from Port Elizabeth through De Aar to Walvis Bay in South West Africa; secondly, from Johannesburg through Newcastle, Pietermaritzberg to Durban; and a third, from Johannesburg and Pretoria to Lourenço Marques.

In seven years air travel has made great strides. With the Rand Airport (Johannesburg) as the centre, trunk lines have been established bringing all the main centres of Africa in touch with the Union. A 4½ days' service flies twice weekly to London and any part of Europe can be reached within a week.

Notes on chief towns.

Cape Province.—Cape Town (pop. 335,371) the oldest city and the seat of the South African Parliament, is situated on Table Bay. It is an important port of call for liners, and from it railways extend north to various parts of the Union. There is a large export of gold, diamonds and fruit.

Other ports on the south coast are Port Elizabeth (pop. 109,824) and East London, famous for its wool export.

Natal.—Durban (pop. 259,647) ranks first among South African ports by value of trade. Its harbour has been deepened and it has good communication with the Transvaal and the Orange Free State, whilst another great asset is the coal supply from Newcastle. Its industries include the preparation of foodstuffs and the manufacture of machinery for use in mines. Newcastle apart from its importance as a coal mining centre is noted for its iron and steel works and its great "butter factory" which produces over 3 tons of butter a day. The capital of Natal is Pietermaritzberg, named after Piet Retief and Gert Maritz, two famous leaders of the Great Trek.

The Orange Free State.—The capital of the Orange Free State is Bloemfontein, the seat of the Supreme Court of Appeal of the Union.

The Transvaal.—Johannesburg or "The Golden City" (pop. 519,268), the largest city in the continent, has already been dealt with. The capital of the Transvaal is Pretoria (pop. 128,636), the administrative capital of the Union.

South West Africa.—South West Africa is governed by the Union of South Africa under a mandate from the League of Nations. Apart from its mineral wealth, which includes valuable undeveloped deposits of diamonds, copper, lead and silver, it is an unproductive region consisting largely of desert and scrub. The chief occupation of the people is pastoral farming. Luderitz is the chief diamond centre, Walvis Bay is the commercial centre and Windhoek is the capital.

Other British territories outside the Union.

Swaziland.—This small state which is about the same size as Wales is largely inhabited by natives who play a large part in its government. It consists mainly of grassland and the chief occupation of the people is agriculture and stock rearing, live cattle being the chief export.

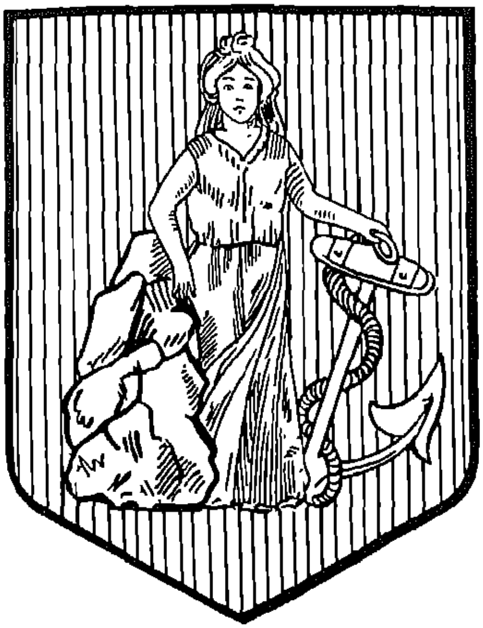
Basutoland.—This is a British Protectorate which has been set aside as a native reserve, white people not being allowed to settle in the country without special permission. Situated on the high part of the plateau, it receives an adequate rainfall, and this, combined with the fertile soil, enables both arable and pastoral farming to be carried on; thus Basutoland is among the most thickly populated parts of South Africa.

There are no navigable rivers, no railways and no large towns. The chief items of export are wool, mohair and maize.

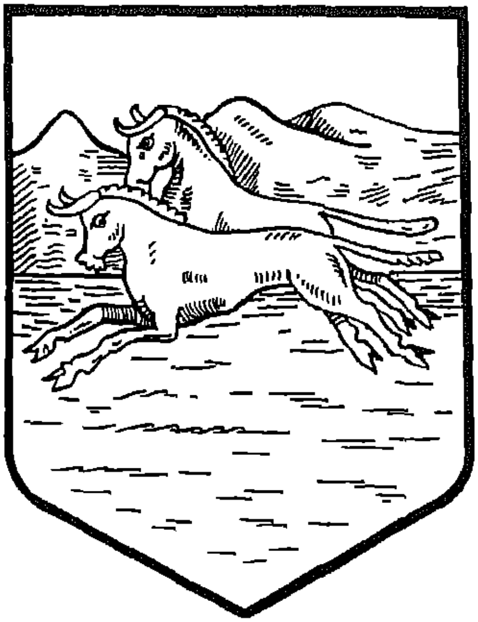
The Bechuanaland Protectorate.—This large territory, consisting mainly of desert and scrub with some savannah land, is almost entirely inhabited by natives. The chief occupations are cattle rearing and the cultivation of maize in favourable areas.

Mafeking, situated in the British Bechuanaland territory of the Cape of Good Hope, is the administrative centre.

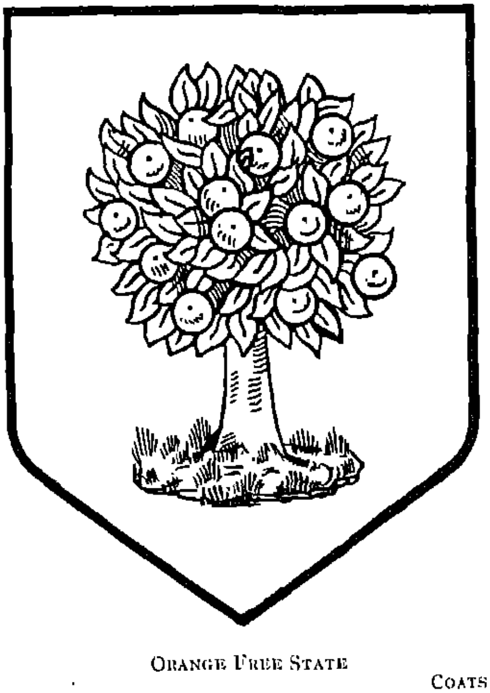
Rhodesia.—It is probable that in very early times there were trade connections between Rhodesia and south-west Asia, but it was not until Livingstone travelled in the territory that Europeans gained much knowledge of it. The work of Cecil Rhodes following on



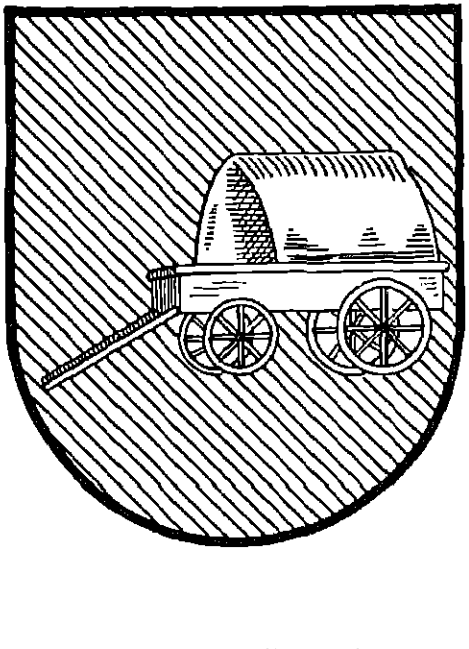
Cape of Good Hope



Natal (Colony)



Orange Free State



Transvaal (Province)

Coats of Arms

[Reproduced by courtesy of the High Commissioner for Southern Rhodesia.

PLATE XL. NATIVE HUTS IN SOUTHERN RHODESIA

the discoveries of Livingstone was largely responsible for the inclusion of this territory within the British Empire.

At first the whole territory was administered by the British South Africa Company, but by 1923 development was so well advanced that Southern Rhodesia was included among the self-governing colonies of the Empire and a year later Northern Rhodesia came under the direct government of the Crown.

Southern Rhodesia.—Owing to its elevation a large part of Southern Rhodesia experiences a temperate climate, but despite the suitability of areas over 4,000 ft. for white settlement there are only 45,000 whites out of a total population of a million. The natives live in reserves (Plate XL) and their chief occupations are the cultivation of maize or millet and the rearing of inferior cattle.

Mining is, however, more important than agriculture and is one of the principal concerns of the white settlers. The chief minerals produced for export are asbestos, chrome iron ore, gold and coal. The latter is mined in the Wanki coalfield and there is a large export to the mining areas of the Belgian Congo.

The chief crops grown by the whites are maize and tobacco, Plate XLI. Some ranching is carried on in the drier south-western area.

Among the chief towns Salisbury is the capital and administrative centre, and Bulawayo the commercial centre. A good deal of trade of Southern Rhodesia is conducted through Beira in Portuguese East Africa which is connected by rail with Salisbury and Bulawayo.

Northern Rhodesia.—The Protectorate of Northern Rhodesia occupies the southern part of the Great Lakes plateau, and in the north-east reaches an altitude of over 5,000 ft., thus making this part suitable for white settlement. At present there are only about 14,000 whites of whom a large proportion is engaged in cattle rearing or in the production of maize and tobacco. The cattle find a ready market in the Katanga district of the Belgian Congo, but ranching has been handicapped by tsetse fly which infests large areas. A recent development is the introduction of plantation crops such as coffee, cotton and sisal hemp. As in Southern Rhodesia, mining is important, the chief centre being Broken Hill where copper, lead and zinc are obtained. The capital of Northern Rhodesia is Livingstone.

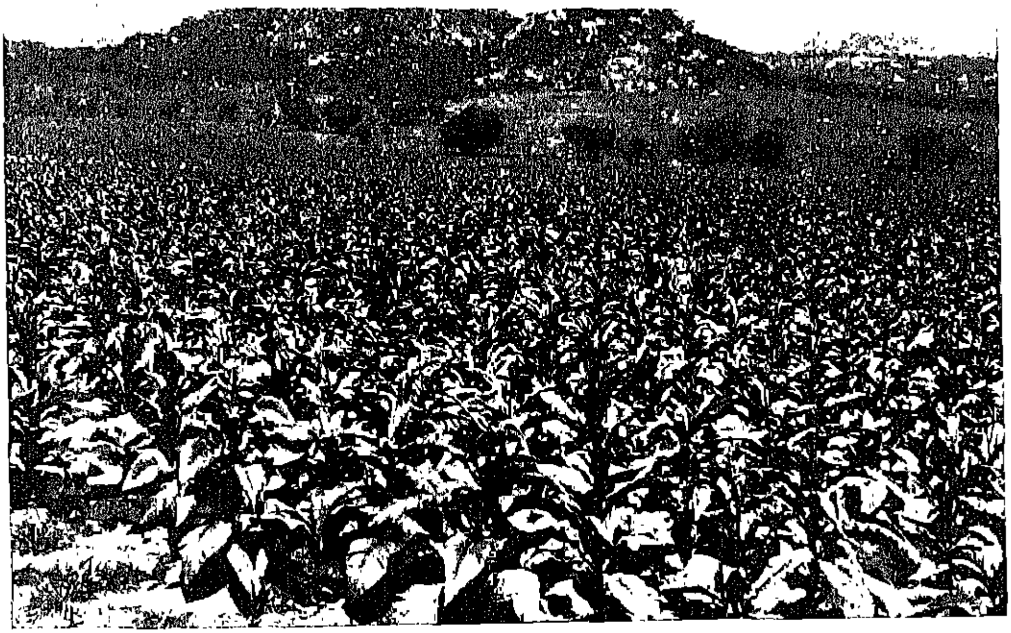
Memory Work.—1. The Union of South Africa is the only dominion in which settlement by white people was already well established before British colonisation began.

2. It is made up of four provinces—the Cape Province, the Orange Free State, the Transvaal and Natal.

3. The native peoples altogether are known as Bantus. Those that are town-bred dress themselves in the European manner and rapidly cast off the manners and customs of their forefathers, but in the rural districts they are still far from being civilised.

4. The two types of white peoples speak their own language, though many learn both. They are English and Afrikaans (a kind of Dutch).

5. Most white people are engaged in farming or mining; natives are employed in each case to do most of the unskilled work but in their own reservations they cultivate their own land and rear cattle.



[Reproduced by courtesy of the High Commissioner for Southern Rhodesia.

PLATE XLI A TOBACCO ESTATE IN RHODESIA

6. The chief farming crops are maize, wheat, citrus fruits and grapes. Sheep are very important but the cattle are not of the best quality and are often troubled by diseases passed on through the careless methods of the natives with their own herds.

7. South Africa's great riches come from gold (Johannesburg), diamonds (Kimberley) and coal (Newcastle).

8. In recent years great improvements have been made to the chief ports. There is now deep water for the biggest liners and all modern equipment such as pre-coolers for fruit, elevators for loading 1,000 tons of grain per hour, travelling cranes and grabs for quick loading and unloading and belt-conveyors for use in coaling.

9. To-day the passenger service to England takes fourteen days by sea and four and a half days by air.

Activities and exercises.—1. *Questions*:

(*a*) Why were these names given to the following South African places:—Transvaal, Rhodesia, Newcastle, Natal, Pretoria, Ladysmith?

(*b*) Oranges and lemons are called citrus fruits. Why is this?

(*c*) How much would it cost for an emigrant to go to South Africa?

(*d*) The following are common words in Afrikaans: dorp (village); veldskoene (hunting shoes); klapbrock (flapped trousers). Try to find six others.

(*e*) The following shipping lines are a few of those that trade with South Africa. What ports in Great Britain do they start from? Union-Castle; Clan; Ellerman; Houston; Blue Funnel.

(*f*) What sort of work are the Kaffirs best suited for?

(*g*) What are succulent plants and whereabouts do they grow?

(*h*) When can South African oranges be bought in English shops?

2. *Map*.—Draw an outline map of South Africa, mark Johannesburg and show by ribbons of coloured paper the rail and air connections with all prominent ports.

3. *Diagram*.—Here are some statistics. Show them in colour. The figures are for 1936, giving the value in million pounds:

Imports		*Exports*	
Machinery	8·2	Gold	81·9
Motor vehicles	8·5	Wool	9·8
Railway material	3·7	Diamonds	3·3
Food and Drink	4·9	Coal	1·7
Electrical material	4·9	Fruit	3·2
Cutlery, tools, etc.	6·3	Hides & skins	1·9
Cotton goods	4·9	Sugar	1·3
Other textiles	7·0	Asbestos, copper, platinum, manganese	1·1
Wood	2·4		

4. *Craft*.—(*a*) Among the many subjects from South Africa are the white-hooded ox waggon, the kappie or sunbonnet, a native village, or a Boer dorp with its central market square with waggons "out-spanned."

(*b*) Draw up a poster drawn to attract emigrants. Think of the particular attractions that you would like to see for yourself.

5. *Write* an article for the school magazine. Here are some subjects: Native life in South Africa; By motor-car through the veld; Big game in Rhodesia; From Johannesburg to Durban by air.

LESSON UNIT V—CANADA

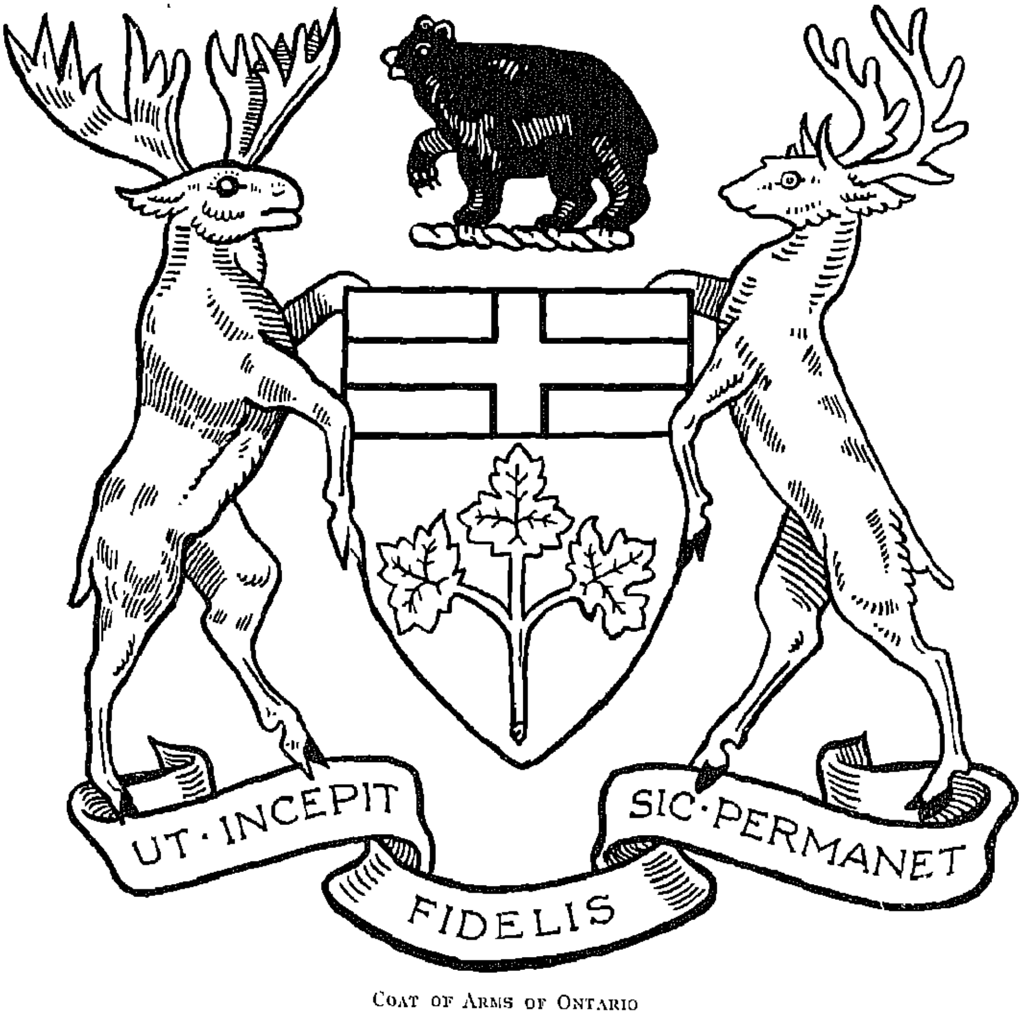
Introduction.—Although Canada is primarily a new country with a comparatively small population exporting raw materials to more highly industrialised nations, development has taken place so rapidly within recent years that a study of the country by means of a survey of the primary activities may lead to many repetitions that tend to create confusion in the minds of the children. The country, too, falls naturally into unmistakable divisions and accordingly a simple regional scheme has been adopted with this unit in providing notes for formulating lessons. Statistics from the latest compilations have been added for the information of the teacher, to help in localising particular centres of production and also to show

how in many cases activities once narrowly confined to special districts have now become extended throughout the Dominion. They are also of value in compiling suitable demonstration charts.

As topics may be preferred to a regional study for "B" and "C" streams of children the necessary facts required have been presented so that they are readily obtainable from any particular area.

Historical aspect.—The Vikings were probably the first explorers from Europe to set foot in North America. It is known that in A.D. 1002 Lief Ericson sailing from Greenland landed on the coasts of Labrador and New England, which he called the "Land of Flat Stones" and "Wineland" respectively. Settlements were not permanent and this new land became lost to European peoples.

In the year 1497, John Cabot, a Genoese sailor in the service of England, re-discovered the country but no attempt at settlement was made until after a French expedition under Jacques Cartier in 1543 to the river St. Lawrence. Small trading stations known



Coat of Arms of Ontario

as *Kanata* by the Indians, hence the name Canada, were established but no real colonisation was attempted until the arrival of Samuel de Champlain in 1603. He worked unceasingly to develop the fur trade and to explore the interior, and reached westward as far as Lake Huron and Lake Ontario. In the meanwhile, the British were established on the east coast of North America and also in the huge northern area controlled by the Hudson Bay Company. Determined to dominate the interior, the French pressed on planning to establish a complete connection between New Orleans and Quebec. The scheme fell through mainly owing to a disinclination for emigration and to the rapidly increasing strength of the British colonies. Finally, as a result of the conflicts of the eighteenth century, the country passed into the hands of Britain and thereafter the Dominion gradually took shape. At first, government was exceedingly difficult, the large French element in Lower Canada and the isolation of the provinces from each other tending to create dissension, but in 1867 an agreement was reached and Ontario, Quebec, Nova Scotia and New Brunswick formed the first federal union in the British Empire. In 1870 the Hudson Bay territory followed the others; then came British Columbia in 1878 and Prince Edward Island in 1873. The complete self-governing status of Canada was recognised with that of the other Dominions at the Imperial Conference of 1926, and to-day the country stands as a firm member of the British Commonwealth, her governor-general being received by foreign nations no longer as a representative of the Government of Great Britain but with the formalities due to a reigning sovereign.

Natural aspect.—1. Relief.—There are three main relief divisions in Canada—the eastern highlands, the central lowlands and the western highlands.

(*a*) *The eastern highlands* are very old fold mountains running from north-east to south-west; they have been worn down and then uplifted so as to form a sort of dissected plateau. During the Ice Age the region sank under the great weight of ice and this accounts for the irregular type of coastline found around the estuary of the St. Lawrence.

(*b*) *The central lowlands* are low but not particularly flat. The area around the Hudson Bay, known as the Laurentian shield, is a peneplain of very old rocks which have been heavily glaciated with the result that the higher regions were "planed down" whilst the material so obtained was deposited in the form of glacial drift in the lower parts. This drift had a very irregular surface and lakes formed in the hollows when the ice retreated, so that to-day the region has numerous lakes and swamps and a very irregular river system.

Along the southern edge of the shield there are the Great Lakes and the St. Lawrence valley. The former occupy depressions which were caused by the bending of the earth's crust after the retreat of the ice sheets.

The remaining area of the central lowlands is made up of the prairies and the basin of the Mackenzie River. The prairies rise in steps towards the Rockies and are drained by the Saskatchewan River which flows into Lake Winnipeg. The basin of the Mackenzie is a great flat region covered in many parts, as are the prairies, with glacial drift. The large lakes of this area, which include Athabaska, the Great Slave, and the Great Bear, drain into the Mackenzie River, and they mark the line of junction between the Mackenzie basin and the Canadian shield. Navigation is severely handicapped on this system since the outlet is in the Arctic Ocean. Apart from this the upper course of the Mackenzie often thaws before the lower thus causing floods and swampy conditions.

(*c*) *The western highlands* are part of the Circum-Pacific fold system and are of the same age as the Alps, Himalayas and Andes.

On the eastern margin are the Rockies which are the highest of the ranges, whilst on the west are the Cascades. In between these lies the great plateau of Columbia. The Coast Range is partially submerged and forms the islands which stretch along the west coat and which are separated from the mainland by a submerged trough.

2. Climate.—The fact that most of Canada lies north of the 50° N. line of latitude, taken together with its great area, explains why such a large part of the Dominion has a temperature below freezing point in January and why such great extremes of temperature are experienced in the interior.

The west coast has the most equable climate since it is under the influence of the westerlies all the year. These winds are relatively warm in winter having come over the warm North Pacific current from the south.

The east coast has harsh winters, since not only is it washed by the cold Labrador current but also it is crossed at that season by cold winds which are blowing outwards from the high pressures over the centre of the continent. In summer, however, the east coast is slightly warmer than the west since warm winds are blowing from the interior.

Canada has two main types of rainfall. Rain at all seasons is experienced in British Columbia and in the east, whilst the interior has rain in summer only. The predominant influence is, of course, the westerly wind belt, since Canada lies within this. Depressions, which are characteristic of this belt, pass across the Dominion from west to east. The west receives the heaviest rainfall and the condensation which takes place when rain is formed releases heat into the air and so the wind descends the eastern slopes in a warm, dry condition, when it is known as the Chinook. This causes the western part of the prairies to have a dry climate. Eastern Canada receives abundant rain in summer

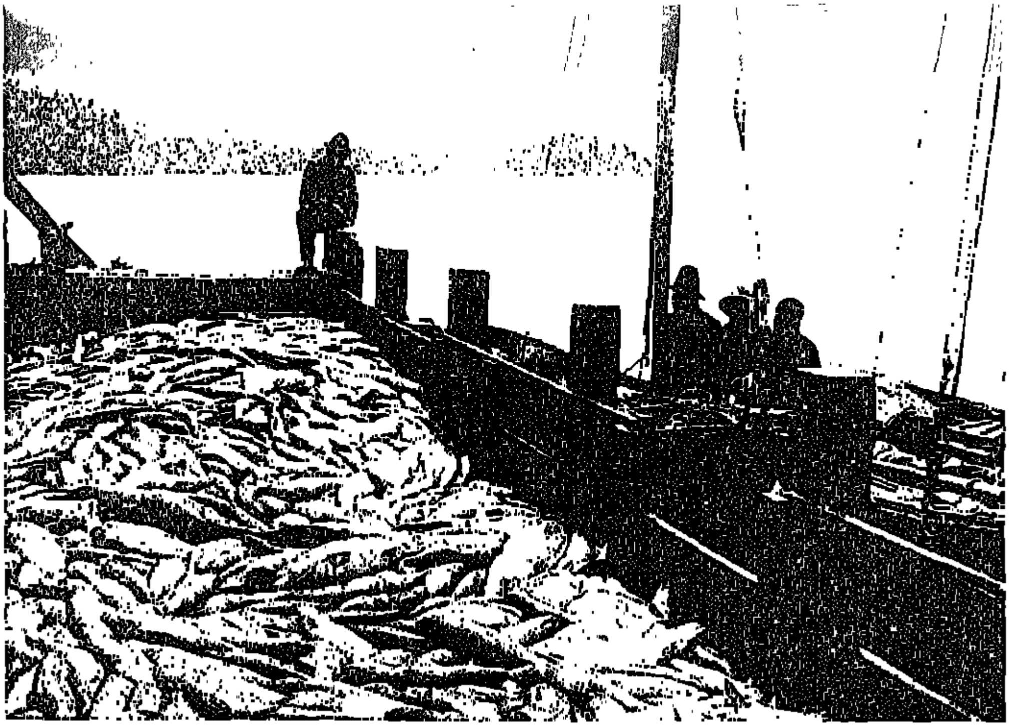


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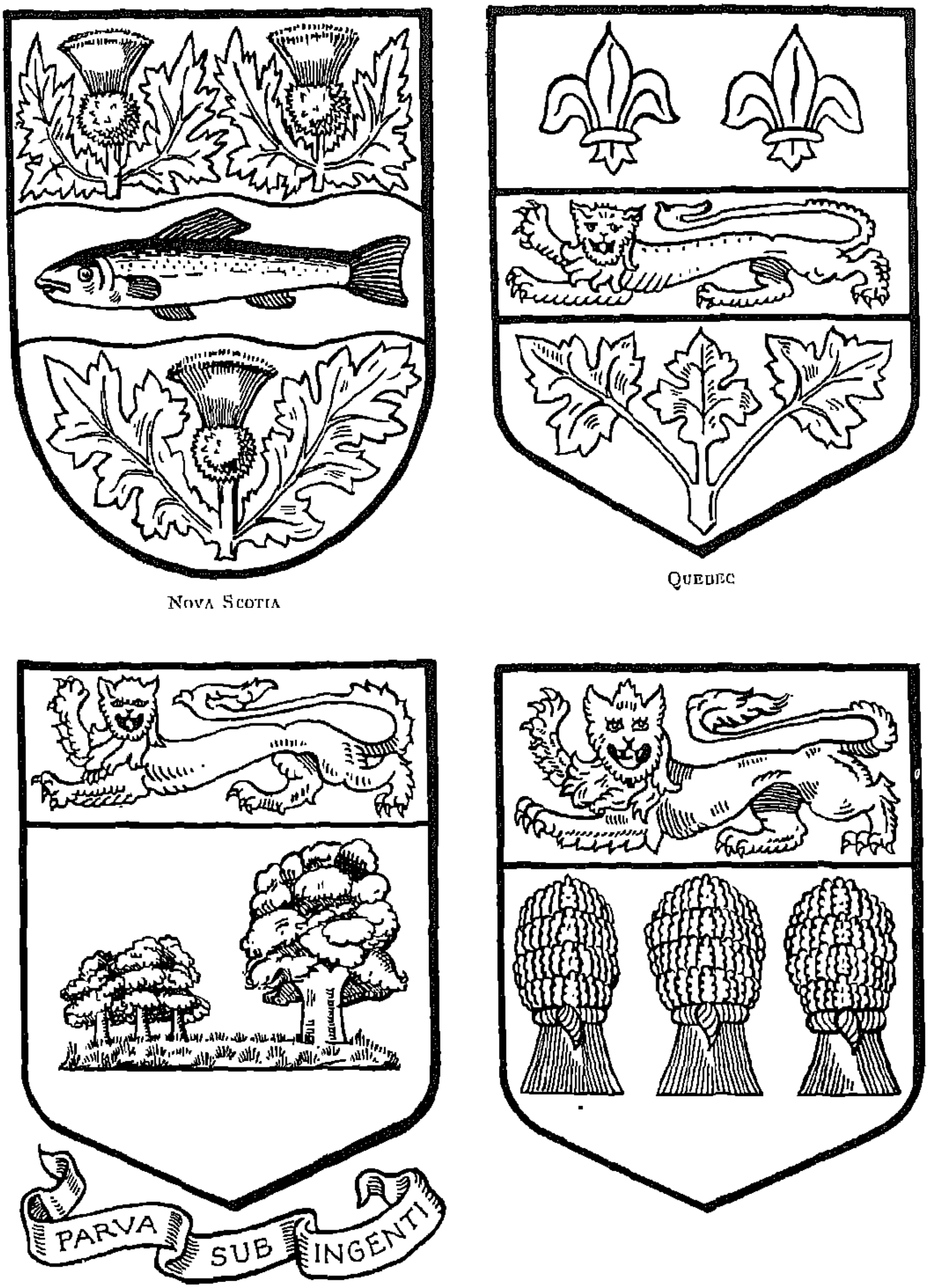
PLATE XLII. SALMON—SKEENA RIVER, BRITISH COLUMBIA



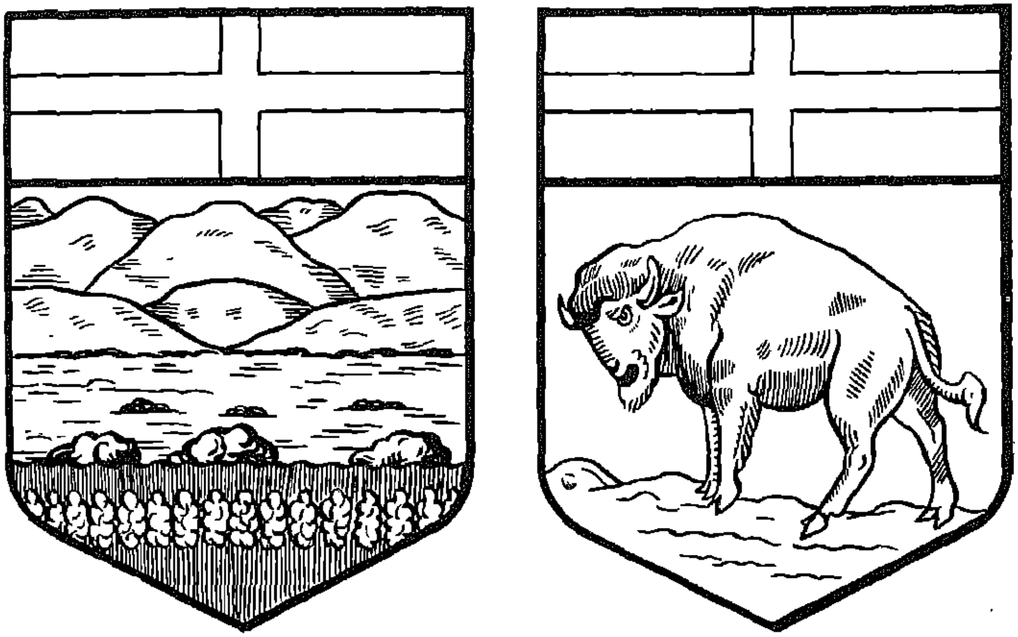
Nova Scotia

Quebec

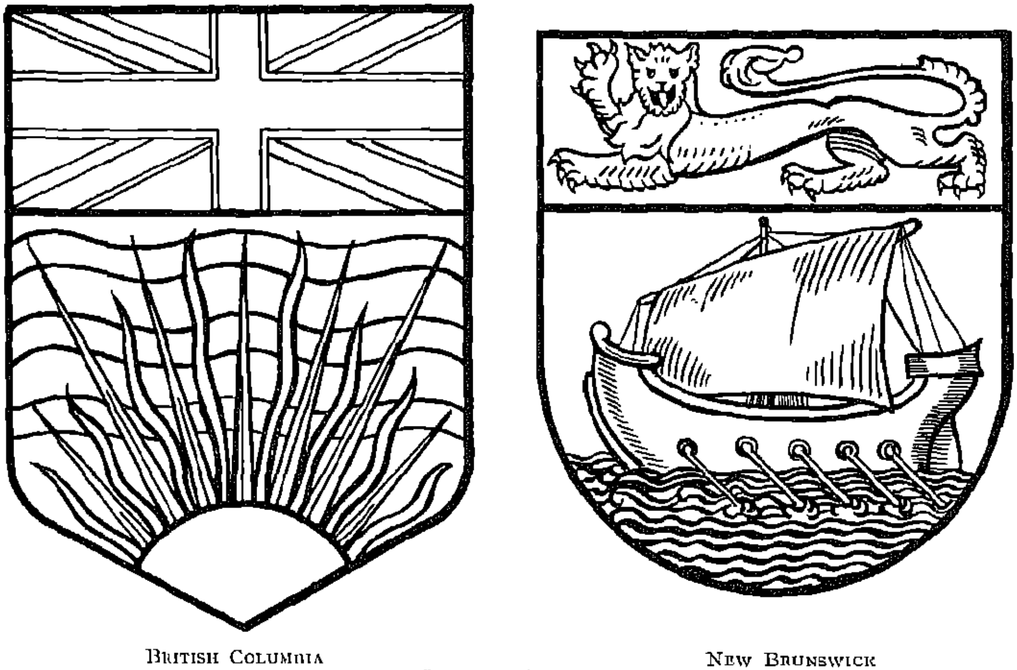
Prince Edward Island

Saskatchewan

Coats of Arms



Alberta Manitoba



British Columbia New Brunswick

Coats of Arms

whilst in winter most of the water is in the form of snow brought by depressions and wind from the sea. Most of the rain in the interior is caused by the warm air rising during the summer. Such upward currents are called *convection* currents and the type of rainfall resulting from them is known as convectional rain.

3. Native life.

(*a*) *Vegetation.*—The vegetation of Canada, already described under the natural regions of the world, falls into four well-marked divisions. They are, firstly, the *tundra region*, occupying the northern half of Labrador and stretching along the northern coast from the southern end of the Hudson Bay to Alaska.

Secondly, there is the *coniferous forest* belt south of the tundra, the southern boundary of which stretches from the northern shores of the St. Lawrence estuary in a north-westerly direction towards the western highlands.

Thirdly, there is the *deciduous forest* on the west coast of British Columbia and in the Maritime Provinces; and fourthly, there is the *grassland* of the interior between the coniferous forest and the United States boundary.

(*b*) *Animals and birds.*—Animals are still numerous despite the once excessive destruction that caused almost the extinction of the bison. Of the larger animals the musk ox, caribou, moose and elk are still frequent in the wilder regions and the pronghorn antelope and various species of deer on the plains. Among the western mountains roam the grizzly bear, the black bear, the puma, the bighorn or mountain sheep and the mountain goat, and along the Arctic shores, the polar bear. The big timber wolf frequents the wooded districts of all the provinces, the wolverine the barren lands, and the coyote the plains. Among the coniferous areas, the well-known smaller fur-bearing animals such as the silver fox, the mink, the skunk and the beaver, though diminishing in number, are still frequent.

Most of the birds are migratory and wildfowl especially, such as geese, duck and ptarmigan, breed in great numbers in the western prairies and along the arctic coasts. Nearly all the sea birds of England are common in Canadian waters, eagles, owls and hawks of many species abound and among the song birds the oriole, cat bird and American robin are met, together with a host of the better-known types.

(*c*) *Peoples.*—Altogether the peoples of Canada number approximately 11 millions, half of whom are of British stock, 4½ millions of European races, and a million Asiatics and negroes. Of the original inhabitants, about 130,000 Indians remain and some 6,000 Eskimos.

The Indians, dark brown and not "red" by any means, are an exceedingly mixed people of Mongoloid type, with prominent cheekbones, lank black hair and broad-based, straight or aquiline noses as characteristics. They are composed of many tribes which have been associated into at least ten major dialect groups each of which is resident in a particular part of the country. Fundamentally nomads of the hunting type, their material culture at the coming of the white man was not very far advanced; polished stone was universally used for tools and work in beaten copper, wood, ivory bone and shell varied according to local conditions. Their social organisation was well developed and their religious belief usually centred about the concept of a personal guardian spirit with a great respect for the *shaman* or medicine man.

Generally speaking they are a people with strong emotions kept in restraint by pride, and resentful of the white man's assured superiority which is met by a grave and dignified reserve. Hunting skill, athletic prowess, fortitude in pain are all held in high esteem and they also have a great respect for wisdom and religious and oratorical power.

To-day, after a serious decline, their numbers are increasing as they now live mainly in reserves without interference where medical and educational services have been provided. In the more densely populated parts the Indians have adopted the white man's mode of life but in the northern forest area they still maintain their old type of existence, retaining their wooden shacks and their picturesque dress. Hunting grounds have been reserved for them since they find it difficult to compete with the white trapper.

Modern aspect.—For the purpose of studying the great development that has taken place in Canada in recent times it will be necessary to study separately the five regions into which the country falls naturally. They are (1) the eastern *Maritime Provinces*, (2) the *St. Lawrence Valley* and the *Great Lakes Peninsula*, (3) the northern *lowlands*, (4) the *prairies* and (5) the *western highlands*.

1. The Maritime Provinces or "Arcadian" region include Nova Scotia and Cape Breton Island, New Brunswick and Prince Edward Island. Although forests still cover the less accessible part of this region, a great proportion is available for farming and nearly the whole of Prince Edward Island is cultivated. Mixed farming of the English type—fruit, wheat, oats, root crops and hay—is the main occupation together with dairying on a considerable scale. One of the most productive regions is that lying at the head of the Bay of Fundy. This bay is noted for its high tides which bring large amounts of sediment. This on reclamation gives extremely fertile soil. Sometimes the farmers flood the area by breaking down the dykes, the layer of mud so deposited being a good fertilising agent.

The Annapolis valley of Nova Scotia which runs parallel to the Bay of Fundy is a great fruit-growing area, as the orchards are protected from cold winds and the spring frosts. Nearly two million barrels of apples are exported from this region each year to Britain alone. The lowest part of the valley is occupied by meadowland and the higher slopes above the orchards are used as pasture land. The farms generally occupy long strips running across the valley so as to include a portion of each type of land in one farm.

Prince Edward Island is the most densely populated province and is notable for the flourishing industry of silver black fox breeding. Some 650 ranches are conducted, the skins obtained forming an important item of export.

Fishing is another important industry of the Maritime Provinces owing to the nearness of the famous feeding grounds, the Grand Banks of Newfoundland. Fish, including cod, herring, mackerel, salmon and lobsters, are caught to the value of about three million pounds annually.

The coal and iron deposits of *New Brunswick* are of great importance; natural gas exists in immense quantities in Albert County and silver, lead, antimony, manganese and copper are also mined.

Sydney is the chief centre and the iron and steel works are the largest in Canada. Most of the other manufacturing interests are connected with the lumbering industry and dairying (3·9 million lb. of butter and cheese made annually).

The two towns of Halifax and St. John, the largest cities of Nova Scotia and New Brunswick respectively, are important winter ports for Canada, since the Gulf of St. Lawrence is frozen for several months in winter.

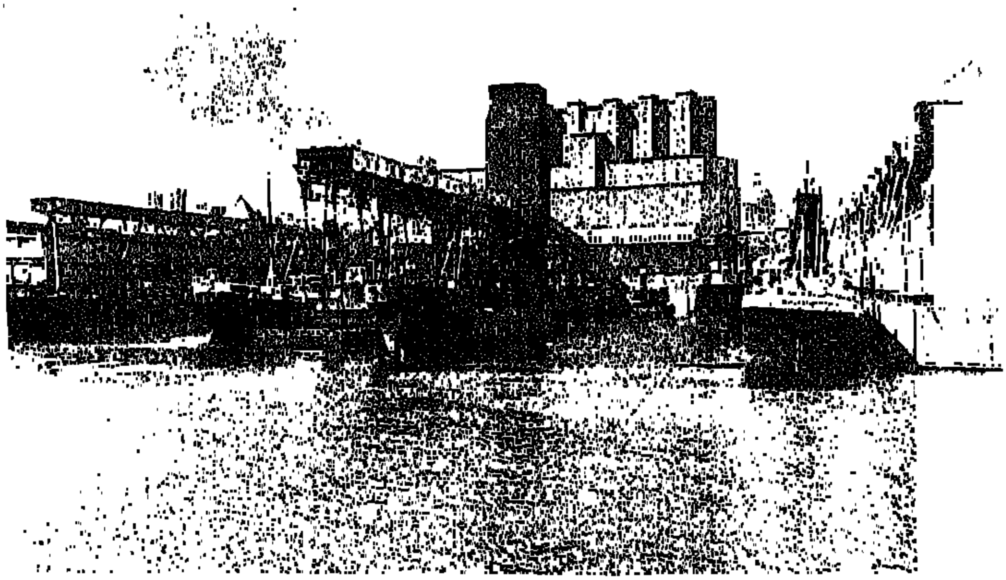
Halifax has an excellent harbour and shipyard, is the *entrepôt* of a large trade to the West Indies and South America and is one of the terminals of the Canadian National Railway.

Statistics	*New Brunswick*	*Nova Scotia*	*Prince Edward Is.*
Cattle	198,600	213,900	92,700
Sheep	108,800	134,900	48,800
Pigs	82,100	43,300	41,800
Horses	49,490	40,380	27,600

2. The St. Lawrence Valley and the Great Lakes Peninsula.—The St. Lawrence river and the Great Lakes form one of the most important commercial waterways in the world since they carry traffic right into the heart of North America for a distance almost as great as the breadth of the Atlantic Ocean.

Handicaps exist, however, firstly by the ice-bound condition of the St. Lawrence estuary from December to April, and secondly by the "breaks" due to waterfalls or rapids. Thus navigation is stopped between Lakes Superior and Huron by the Sault Ste. Marie Falls, and between Lakes Erie and Ontario by the Niagara Falls. The former is circumvented by the "Soo" Canals (one on each side of the river), and the latter by the Welland Canal, which can accommodate large ocean-going vessels. The three twin locks on the latter where it ascends the Niagara escarpment are famous as they are able to lift ships up as others are lowered. The worst barrier at present is the section of the river between Lake Ontario and Montreal where there are several rapids. The canals round these are small and prevent the passage of large ocean-going vessels.

In *the lower part* of the course of the St. Lawrence farming is handicapped by the long cold winters, but besides the mixed type associated mainly with the towns, dairying flourishes and a considerable amount of maple sugar is also produced for the Quebec refineries. The greatest industry, though, is connected with the millions of acres of forest land and immense quantities of pulp and paper are made at the mills established along the rivers where they leave the plateau. One other important product of this part of the region is asbestos,



[Reproduced by courtesy of the Canadian Government Motion Picture Bureau

PLATE XLIII. VESSELS LOADING GRAIN AT MONTREAL HARBOUR

The jetties are capable of loading vessels on each side at the rate of 32,000 bushels per hour.

which is exported in large quantities to the U.S.A. and Great Britain.

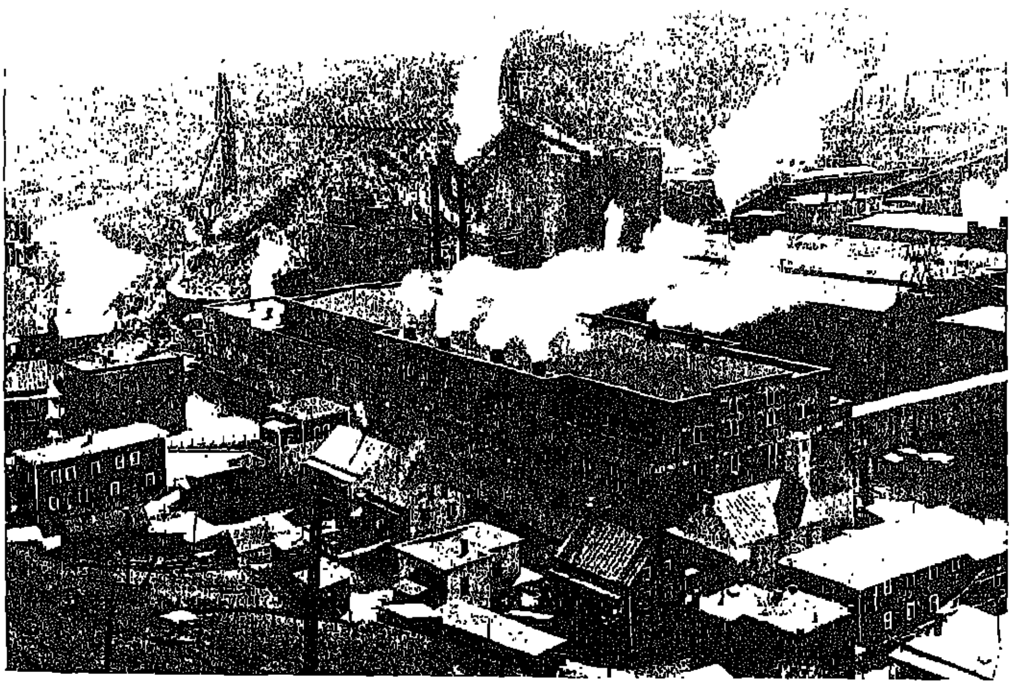
Quebec (pop. 140,000), the oldest city of Canada, is the largest port of passenger traffic and though there are many industries, including cotton, leather, paper and machinery, much of the commercial trade is being absorbed by Montreal.

Montreal (pop. 865,000), at the confluence of the rivers Ottawa and St. Lawrence, is the largest city in Canada and is a very important natural centre. From it run the routes along the lower St. Lawrence to the sea, along the Ottawa valley to the Great Lakes, and along the Richelieu valley to the Hudson valley and New York. Montreal deals with a quarter of Canada's foreign trade and exports all typical Canadian products, such as wheat, pulp and paper, furs, meat and dairy produce. It is also a great manufacturing town with flour-milling and textile industries.

Ottawa (pop. 126,872), the capital of Canada, is situated in a thickly forested region and thus its main industries are saw milling and the preparation of paper. Hydro-electricity, obtained from the falls on the Gatineau and Ottawa Rivers, is the chief source of power. The Rideau Canal connects Ottawa with Kingston on Lake Ontario, where cars and agricultural implements are manufactured.

The Lake Peninsula section of the region has a climate tempered by the effect of the lakes and a soil that is rich from glacial deposits. Consequently, fruit farming—apples and pears and, in the southern parts, peaches and grapes—is a prominent feature and dairying a highly organised industry.

The area includes also the chief manufac-



[Reproduced by courtesy of the C.N.R.

PLATE XLIV. ANGLO PULP AND PAPER COMPANY, SHAWINGAN FALLS, QUEBEC turing region of Canada mainly due to the large supplies of hydro-electricity produced by the Niagara Falls, and to the position of the towns on the main trade routes of the continent.

The leading towns are *Toronto* (pop. 631,027), the centre of industrial and commercial activity with great shipping interests on the Lakes; *Hamilton* (pop. 155,547), the Birmingham of Canada, and London (pop. 71,148).

Shipbuilding, engineering, the preparation of foodstuffs and pulp paper making are the main industries.

Statistics	*Ontario*	*Quebec*
Cheese	73·5 million lb.	20·3 million lb.
Butter	80·4 ,, ,,	73·4 ,, ,,
Dairy cows	1,181,500	938,900
Other cattle	1,292,700	757,500
Horses	562,900	270,600
Sheep	945,700	666,800
Pigs	1,225,300	611,200

3. The northern lowlands.—This very thinly populated area, covered to a very large extent with coniferous forest, comprises the Laurentian Shield and the basin of the Mackenzie River.

The Laurentian Shield is a tremendous repository of undeveloped resources of timber, minerals and water power. Farming is unimportant, mainly owing to the poverty of the soil, although dairying and mixed farming are carried on in the clay district of northern Quebec and Ontario. Lumbering occurs where rivers are available in summer for transporting the logs, and hunting and trapping are important occupations amongst the Indians and half-breeds who convey their *winter* stock of pelts to Fort Churchill and York Factory. To-day, elaborate precautions are taken to prevent forest fires, aeroplanes playing a prominent part as firefighters.

The mineral deposits are among the richest in the world; gold, silver, copper, nickel, cobalt, zinc, lead and platinum are known to exist but await future development. In the south-western district mining is in full swing, Sudbury producing most of the world's nickel supply; Kirkland Lake and Porcupine, gold in quantity second only to the Rand of South Africa, and Cobalt, silver.

The railway across the territory, completed in 1929, connects Manitoba with Churchill and relieves the congestion on the Great Lakes following upon the wheat harvest. Great difficulties were encountered in its construction, including the crossing of a great *muskeg* or swamp on which no adequate foundation could be built. Finally the line was built on the frozen swamp in winter and was packed with ballast to keep the ground frozen in summer also.

The Mackenzie basin lies mainly north of 60° latitude. Some agriculture is carried on in summer when the long days cause crops to grow rapidly and a few cattle are reared. Reindeer thrive in the region and the Canadian Government are instructing Eskimos in methods of reindeer keeping on the "arctic prairies" around the Mackenzie delta.

The mineral wealth of the basin is considerable, with petroleum, radium, lead, zinc, gold and silver as the chief minerals. Some mining is carried on around the Great Bear and Great Slave Lakes, but the industry is handicapped by inadequate means of transport. Aeroplanes are becoming of increasing importance in this respect and supplement the dog sledges and river steamers.

Statistics of minerals in Ontario (approx. value of annual output):

Gold £15·6 millions; silver £·7 millions; nickel £7·1 millions; copper £3·9 millions.

The total amount is more than four times that of any other province.

4. The Prairies.—The prairies include the southern parts of the provinces of Manitoba, Saskatchewan and Alberta where glacial deposits have provided a very fertile soil. In this region, with its typical continental climate (Winnipeg, January 4° F., July 66° F., rainfall 22 in.), the ground is frozen from

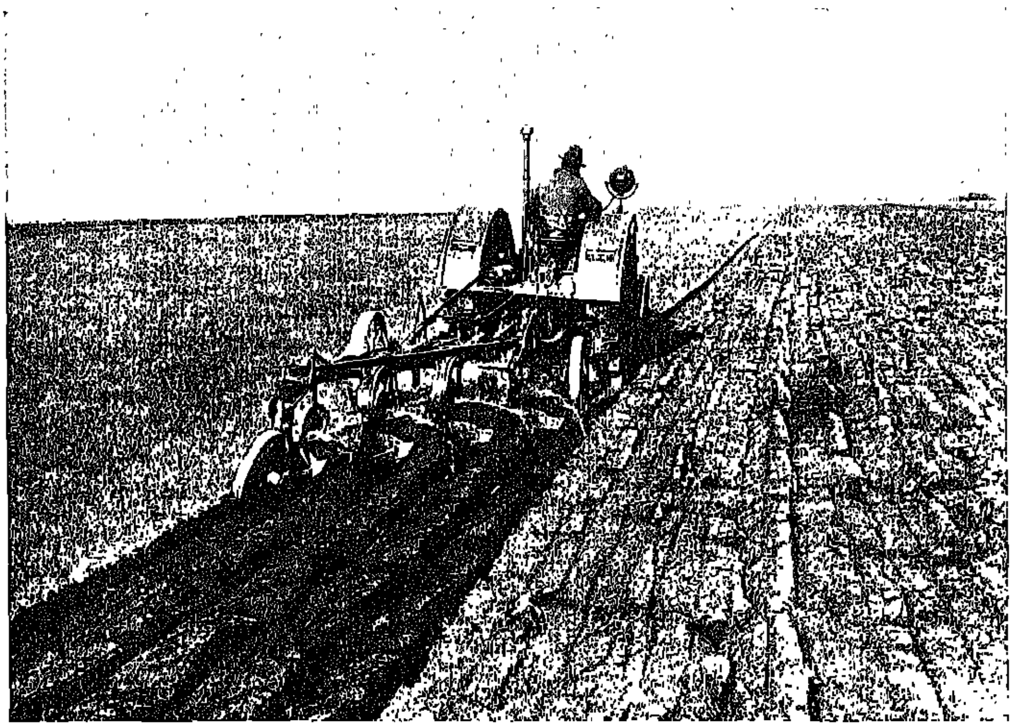


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PLATE XLV. PLOUGHING BY TRACTOR, WESTERN CANADA

November till April. This was a great drawback to farming until the discovery of Red Fife wheat, a hardy type that was both resistant to cold and matured quickly. Since then further species have been developed and now the wheat belt can be extended if desired through almost the whole of the prairie region.

Owing to the generally level land, the size of the farms and the need for the work to be completed in a short period, farming operations are carried out on a large scale. Huge machines, either horse-drawn or machine-driven (Plate XLV), are employed for the spring sowing and the harvest in August, and in the latter period the urgency of the work often causes operations throughout the night and the drafting in of hundreds of temporary labourers from the eastern provinces and from the U.S.A. The heavy demands of wheat upon the soil have created in recent years the need for more scientific methods, and now crop rotation, dairying and sheep rearing are widely practised with a tendency towards much smaller farms. The grain decreases in importance westward and is replaced by ranching, which used to be the main occupation of the whole region. Near the Rockies the dry warm Chinook permits winter-sown wheat to be grown in Alberta; but conditions are best suited to the rearing of cattle, sheep and horses. The winters are considerably warmer than further east and it is possible in many parts to keep the animals out all through the year. Mixed farming is practised in certain parts of this western section as a subsidiary occupation to ranching.

One district of particular interest is the country, roughly as large as Great Britain, around the Peace River, once considered to be too far north for permanent settlement.

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PLATE XLVI. RAINBOW LAKE, JASPER NATIONAL PARK, ALBERTA

A type of wheat was found that matured quickly in the long, hot days of the short summer, the result being that the population, under 2,000 in 1911, is now well over 600,000.

Railways have played an all-important part in the development of the prairies and between Winnipeg, Edmonton and Calgary there is a close network serving the numerous small towns. *Winnipeg* (pop. 218,785), the great wheat market, occupies a key position and most wheat going eastwards passes from here to Port Arthur or Fort William on Lake Superior and thence either by the Great Lakes or by the railway to Montreal. Some is taken by water as far as Buffalo on Lake Erie and thence goes by rail to New York. Many industries based on local products have grown up in Winnipeg and these include flour milling, the manufacture of agricultural implements and leather.

Other important marketing towns of the prairies are *Brandon* (pop. 17,082) and *Regina* (pop. 53,354). *Calgary* (pop. 83,407) is the largest centre for the ranching country, whilst *Edmonton* (pop. 85,774), commanding the Yellowhead Pass, and *Saskatoon* (pop. 41,734) are railway centres.

The prairies are rich in undeveloped mineral deposits and one of the greatest coalfields in the world lies in Alberta and western Saskatchewan. Little demand accounts for the present small production and the same applies to the petroleum and natural gas found near Calgary. The natural gas is used for the lighting and heating of towns such as Calgary and Medicine Hat where it is so cheap that street lamps are left burning all day, to avoid the greater expense of employing lamplighters.

In the west, storage reservoirs and dams connected with the rivers which flow from the Rockies are being constructed to cope with the irrigation schemes made necessary by the development of wheat growing.

Statistics	*Manitoba*	*Saskatchewan*	*Alberta*
Dairy cows	325,700	590,600	449,600
Other cattle	420,700	942,300	1,086,600
Sheep	207,800	342,500	808,800
Pigs	270,600	664,600	872,700
Horses	314,800	905,600	686,300
Wheat—	22,500	135,000	102,000
—1,000			
Oats —bush.	30,700	131,951	82,203
—			
Barley—	23,100	23,149	16,376

Ontario is the next highest wheat-producing province, with 14,458 thousand bushels. In addition to the above Alberta produces 27 million lb. of butter and cheese and Manitoba supplies 8 million lb. of honey.

5. The western highlands.—This region, which is the province of British Columbia, is one of rugged, parallel ranges of mountains, deep valleys and a high intermont plateau deeply dissected by canyons, the only lowland being that along the Frazer River. The Rocky Mountains which form the highest ranges of the system are cut through by comparatively low passes, the chief being the Crow's Nest (4,450 ft.) and Kicking Horse (5,320 ft.) through which run Canadian Pacific Railway lines; the Yellowhead (3,720 ft.) through which runs the Canadian National Railway, and the Peace River (2,900 ft.) as yet unoccupied by a railway line.

Generally speaking, the climate is of the western European type (Victoria, January 38° F., July 60° F. rainfall; 38 in.) though that of the plateau and the mountain

[Reproduced by courtesy of the C.N.R.

PLATE XLVII. BUFFALO ROUND-UP IN ALBERTA trench between this and the Rockies is drier and more extreme. Consequently, the western mountain slopes and coastal plains are forested but the plateau is mainly grassland and in parts of the valleys irrigation is necessary for successful cultivation.

British Columbia is still in its early stage of economic development, having only one-tenth of its available agricultural and forest lands settled and miles of valuable pulpwood unexploited.

Lumbering is of most importance assisted by an abundant supply of water power. In the absence of snow in many parts, the logs are generally hauled overland by temporary donkey engines to the deep parts of the rivers whence they are floated to the saw mills.

Second in the value of output is *mining*, for the country, in common with many other highland regions, is rich in minerals and it was the discovery of gold in the Cariboo Range in 1858 that really started settlement in the province. The gold found originally in alluvial deposits is now exhausted but new sources have been discovered and now the metal is extracted mechanically from veins embedded in hard rock. Coal is mined near the Crow's Nest Pass and at Nanaimo on Vancouver Island, considerable quantities being exported to the United States. Many other minerals occur including silver, lead, copper, zinc and bismuth ores. The chief smelting centre is Trail near the United States boundary, and fertilisers are made from waste gases which formerly used to cause much damage to the crops.

Farming, the third occupation, is very varied in British Columbia. Dairying and mixed farming are of the greatest importance in the coastal regions whilst apples and pears are grown in irrigated valleys in the plateau. Ranching is important on the plateau itself, and mixed farming and fruit growing are carried on successfully with the help of water obtained from the numerous streams flowing from the mountains.

Fishing, the last of the primary industries, is very actively pursued both in sea and river. Salmon, which provides 80 per cent of the total value of fish landed, are caught in the fjords and in the lower parts of the rivers during the summer months when they are returning from the sea to their spawning grounds in the lakes high up in the mountains. Halibut is caught in the sea whilst whaling and sealing are carried on in the more northerly waters. Despite the healthful and temperate climate of British Columbia, the structure of the country has greatly retarded close settlement. Towns of considerable size have, however, developed at outlets to the coast or where gaps have provided entries for railways into the mountains.

Vancouver (pop. 246,593), with an excellent natural harbour that is ice-free all the year and the terminus of both the Canadian Pacific and the Canadian National Railways, is the most important. Over a third of Canada's wheat export passes through *en route* for Europe via the Panama Canal. Other exports include timber, fish, metals, fruit, coal, pulp and paper.

New Westminster (pop. 17,524), on the delta of the Frazer, is a fish-canning centre. The canneries are built very near the sea and moving belts convey the fish from the boats to the cutting machines which are capable of dealing with a fish per second.

Victoria (pop. 39,082), the capital of British Columbia, is situated on Vancouver Island and is a port of call for liners.

Prince Rupert (pop. 6,350), on the Skeena River, is the northern terminus of the Canadian National Railway and exports canned fish, timber and metals.

The Yukon territory, drained by the Yukon River, is mainly notable as the scene of the Klondike "gold rush" of 1898. Its winters are long and severe whilst it has short warm summers with long days. Gold production has considerably declined compared with the production in the early years of this century, but is still carried on successfully by companies which have large dredgers on the rivers.

Trapping and a little agriculture are also carried on. Dawson City, the chief town of

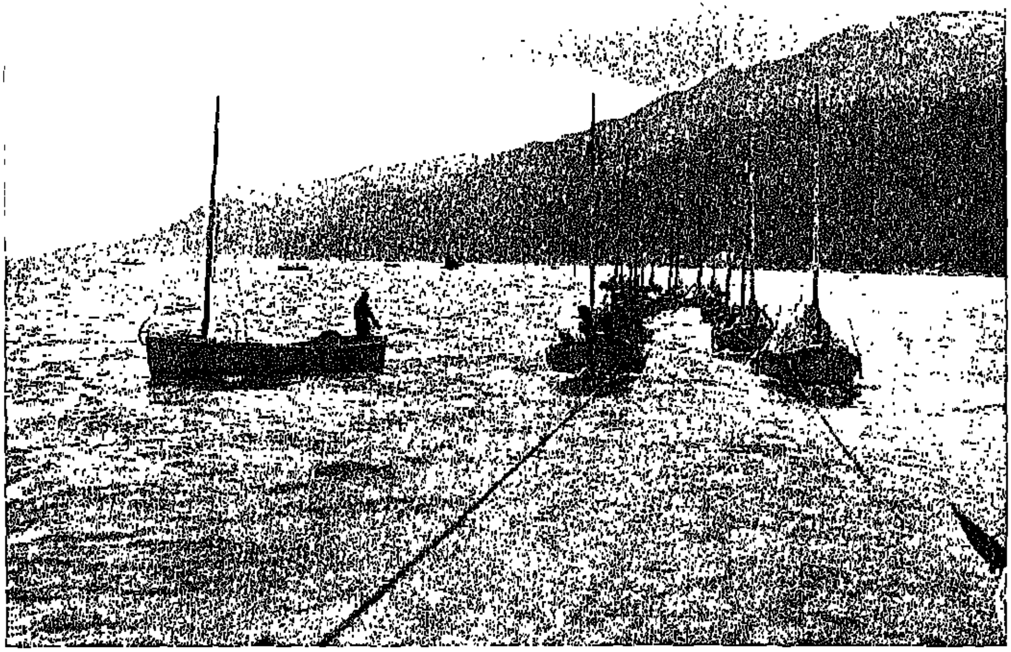

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PLATE XLVIII. SALMON BOATS—SKEENA RIVER, BRITISH COLUMBIA

the area, has a population of about 1,000 as compared with 27,000 in 1900.

Statistics	*British Columbia*
Cattle	328,300 (dairy cows 117,800)
Sheep	177,900
Pigs	51,000
Butter	8·6 million lb.
Cheese	·5 " "

Further notes.

1. *Internal communications.*—Canada has a remarkable system of canal, river and lake navigation covering over 2,700 miles and extending without a break from the lake ports to the Atlantic. Over 18 million tons of freight are transported annually on these canals.

Railways have been of leading importance in the country's development. There are two main systems, one owned privately (the Canadian Pacific) and the other with two transcontinental lines (the Canadian National) which is controlled by the Government. The main routes taken are:

Canadian Pacific:—St. John, Montreal, Ottawa, Winnipeg, Regina, Calgary, Vancouver.

Canadian National:—(*a*) Halifax, St. John, Montreal, Ottawa, Winnipeg, Edmonton, Prince Rupert or Vancouver.

(*b*) Quebec, Lake Nipigon, Winnipeg.

A network of branch lines brings together all towns in the areas of close settlement and in addition to these there are, in general, an excellent system in most of the provinces of gravel and improved earth roads for the usual motor services.

2. *Commerce.*—Although the United Kingdom is Canada's best customer, nearly half the foreign trade is conducted with the United States. This is because:

(*a*) The countries are largely complementary in that Canada has a surplus of raw materials which America requires while America has a surplus of manufactured goods which Canada requires.

(*b*) American business and financial interests in Canada are very great.

(*c*) The common frontier, language, weights and measures, etc.

With regard to the products of the country *in general*, besides the facts already given the leading provinces in respect of particular industries are as follows:

Dairying—Ontario and Quebec; *Fruit*—B. Columbia, Ontario, Nova Scotia; Mining—Ontario, B. Columbia, Quebec; Wheat—Saskatchewan, Alberta, Manitoba.

The total fur farms in Canada now number 7,495; 6,632 are fox fur ranches, the other animals raised being chiefly muskrat, beaver, mink, racoon, marten and fisher. Montreal and Winnipeg are the centres for fur auctions on a large scale.

It is interesting to compare the total production of wheat and wool with that of the other great dominions. The year 1935–6 is taken.

	Australia	*S.Africa*	*Canada*	*N.Zealand*
Wool (mill.lb.)	1,015·4	259·8	19·4	316·5
Wheat (mill.qrs.)	18·7	2·0	28·6	·9

Memory work.—1. Canada, the largest dominion of the British Commonwealth, is situated in the western hemisphere in the northern half of North America.

2. More than half the people are of British stock, most of the rest being of European descent, chiefly French, together with the original natives—Eskimos in the coldest regions and Indians in the more temperate.

3. The climate is mainly of three types, arctic in the north, continental in the middle and towards the east, and temperate in the west and southern fringe.

4. Canada has great natural riches, miles of tall, coniferous forests, great stores of minerals and thousands of square miles of land suitable for all types of farming.

5. The Great Lakes and the river St. Lawrence form a waterway of over 2,000 miles from the middle of the country to the east coast. Special canals have been made so that waterfalls no longer prevent the passage of ships.

6. Use is made of the falls by harnessing their power to provide electricity for many towns.

7. Three main railway lines join the east of the country to the west, one Canadian Pacific and two Canadian National.

8. Goods going west pass out through Vancouver; going east they leave the country by Montreal.

9. The great central collecting town is Winnipeg.

10. To attract emigrants most of the provinces offer free homesteads or farms to new settlers.

Activities and exercises.—1. *Questions*:

(*a*) What national emblem of Canada corresponds to the wild rose of England and the thistle of Scotland? Why was it chosen?

(*b*) If an American Indian, an Eskimo and an Englishman stood side by side, each dressed in the same manner, how could you tell the one from the other? (Give more than one difference.)

(*c*) Why are there so many waterfalls in Canadian rivers?

(*d*) Using your map, how many names of polar explorers can you find and how many of Indian origin?

(*e*) What is hydro-electricity and why is such a name given to it?

(*f*) You have heard of cattle ranches and sheep runs. Whereabouts are there bison or buffalo ranches and reindeer ranches?

(*g*) What other fish are canned besides salmon?

(*h*) Why is Montreal the greatest port of Canada and not Quebec?

2. *Diagram.*—Draw up coloured diagrams for the statistics given showing at a glance

(*a*) how domestic animals are shared throughout the country (choose the most important), (*b*) the main imports and exports. "(*a*)" are given in the study section, "(*b*)" represents value in million dollars.

Year 1936–7

Exports

Wheat and flour	168·0
Newsprint paper	90·8
Timber and pulp	70·3
Gold	88·2
Other metals	122·9
Motor cars	23·9

Imports

Agricultural and vegetable products	131·4
Fibres, textiles and products	104·8
Iron and products	150·2
Minerals (not metals)	116·9
Chemicals	33·1
Wood products and papers	28·9

Note: Average exchange rate $4·935 to £

3. *Poster.*—Here is a word picture showing the natural riches of Canada. Use it as a guide in drawing up a suitable poster.

"If we try to see before us a picture of the wealth of Canada, there is the blazing yellow of the corn, the glow of rosy apples and ripe fruit, the golden butter and cheese, the silvery salmon.

"These, with the grand woods of the forest trees, in shiny glossiness or in powdery pulp for paper, all stand out in splendid profusion from the land of the maple leaf and the beaver."

4. *Handwork.*—For group work or for single model some suitable subjects are: A canyon in the Rockies; a Canadian homestead; a timber raft; a map showing the routes leading to Montreal; a frieze composed of silhouettes of Canadian animals.

5. *Write* an article on the great grasslands of the dominions. Do not forget how they differ in people, work, climate, type of grass and so on.

LESSON UNIT VI—NEWFOUNDLAND AND LABRADOR

Historical aspect.—The self-governing dominion of Newfoundland with the dependency of Labrador is the oldest part of the British Empire.

Discovered by John Cabot in 1497, it was frequented by fishing crews of various nationalities and then claimed for Great Britain by Sir Humphrey Gilbert in 1583. Settlement by the British began in the seventeenth century and after dispute with a rival French colony the land was finally ceded by the Treaty of Utrecht, 1713. To-day the population, which is steadily increasing, is nearly 290,000.

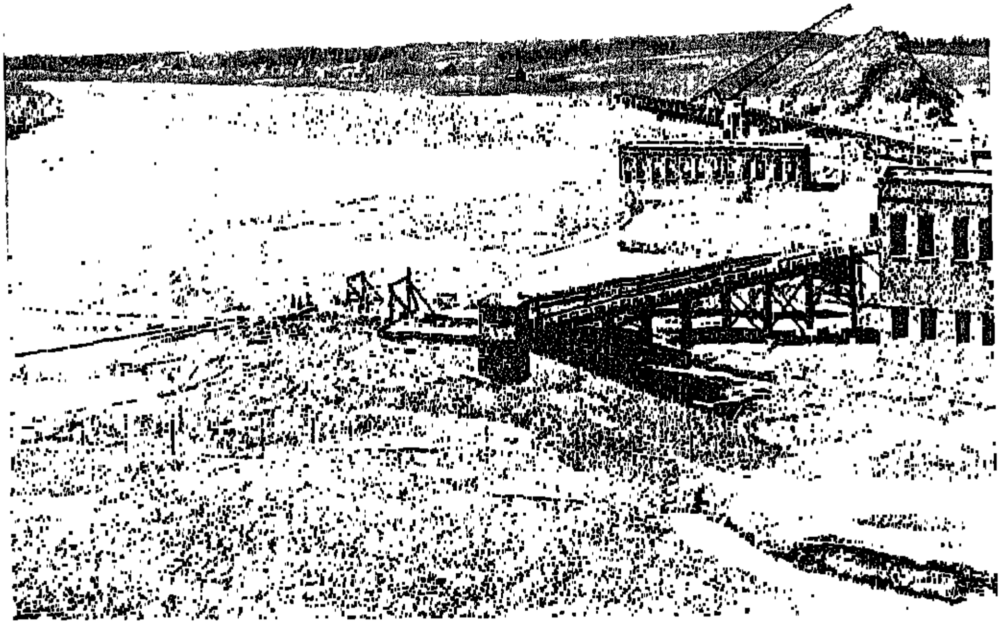
Natural aspect.

Physical.—The coastal region is very rugged, but the interior is undulating with many round hills interspersed with lakes and swamps, the results of early glaciation. Fertile valleys are frequent and there are abundant forests of spruce, fir, pine and birch.

The *climate* is healthful, the thermometer seldom falling below zero in winter and ranging in summer between 70° and 80°. Fogs are frequent in the north and east owing to the ice brought down by the Labrador current bringing cold air in contact with the warm air of the Gulf Stream.

Modern aspect.

Fishing is the foremost occupation of the people, cod in immense numbers being caught during the summer months off the submarine plateau known as the Grand Banks. In 1935 the catch was estimated at well over a million quintals (112 lb.) exclusive of large quantities of halibut, lobsters and other fish. Sealing and whaling are followed in winter, the annual catch being approximately 141,000 seals and 190 whales. A more recent development of considerable importance is salmon fishing and already 3 million pounds of fresh fish are exported yearly.



[Reproduced by courtesy of the C.N.R.

PLATE XLIX. TIMBER MILLS

Lumbering.—The second most important industry is the production of wood pulp and paper for newsprint. Towns have become established where lakes and waterfalls permit the generation of electricity and to-day the island is one of the principal paper exporters in the world. (Value of annual production $13·2 millions.)

Mining.—The mineral resources of Newfoundland are considerable, with iron as the chief metal.

The largest iron mine in the Empire is situated at Wabana on Bell Island and the ore is exported mainly to Canada. Another important mine is worked near the Exploits River, the ore of which consists of a mixture of silver, lead, copper and zinc ores. The constituent ores are separated on the spot and are then exported for smelting mainly to the United States of America and Britain.

Farming.—Only about 3,000 people are engaged in farming which is of a mixed type. A considerable number of animals is reared as the figures (in thousands) for 1935 show: Horses 14·1; cattle 27·9; sheep 60·0; goats 12·0; pigs 8·0.

Communications.—Since 1935 some 800 miles of railway, mostly government-controlled, cross the island and link the chief settlements. Contact with the mainland is established by a fleet of ten first-class steamers which ply between the coast station and Sydney, Cape Breton Island. The capital of Newfoundland, St. John's (pop. 39,886), is the largest town and is situated in a good land-locked harbour.

Labrador is very uninviting for white settlement, and its population of 4,000, mainly Eskimos, is confined to the coast. Physically it is a high plateau which falls rapidly to a narrow coastal plain but which contains considerable mineral wealth. There are large timber reserves and much latent water power.

Fishing and hunting are the chief occupations of the population.

Memory work.—1. Newfoundland is not included in the Dominion of Canada but is a separate self-governing country.

2. The cold and bleak climate is not very inviting for new settlers but the people living there are healthy, hardy and industrious.

3. The Grand Banks are wonderful fishing grounds but icebergs and fogs make the occupation very dangerous.

4. Icebergs are brought by the Labrador Current and fogs occur when this meets the warm Gulf Stream.

5. The Newfoundland forests are in great demand for pulp-making; iron is also a very valuable product.

Activities and exercises.—1. *Questions*:

(*a*) How is electricity obtained from waterfalls?

(*b*) For what products are seals valuable?

(*c*) The Grand Banks are the feeding grounds for vast numbers of fish. How is it that food exists in that particular place?

(*d*) How are cod caught?

(*e*) What else besides paper is made from pulpwood?

Other exercises may be conveniently based on those for the previous unit. Statistics are appended for use where required—value given in million dollars.

Imports		*Exports*	
Textiles	1·04	Fishing products	7·34
Flour	2·07	Mineral products	6·38
Coal	1·22	Manufactures	13·98
Hardware	·89	Forest products	·72
Salt pork	·65	Miscellaneous	·36
Machinery	·61		
Tea and molasses	·65		

(The legal coin of the Dominion is the gold dollar normally equivalent to 4*s*. 1⅓*d*. of British money.)

LESSON UNIT VII—THE INDIAN EMPIRE, BURMA AND CEYLON

Introduction.—India presents one of the most colourful studies of all the lands of the British Commonwealth. The general work of the first year with regard to the monsoon region can now be fully developed. A good method of approach is through a study of the great body of the people who can be compared with the Chinese in their teeming multitudes and in their one pathetic aim in a land governed by the caprice of nature, to obtain their daily food. Their distribution, their methods of working and their dependence upon custom and superstition together with a willingness to follow leadership blindly are all reflections of the geographical conditions under which they live.

Contact with modern development can be followed in the introduction of irrigation and other scientific methods to combat the vagaries of nature, the growth of railways to aid in the organisation and distribution of products and the necessity of secondary industries in crowded cities to balance the overseas' trade account.

Full notes have been given to help in framing any project in view but in particular India is presented as a land of tremendous variety, inhabited by a people to whom the earth is the one great absorbing interest.

Historical aspect.—The earliest occupants of India were short dark-skinned people called Dravidians. Then at about 1500 B.C. waves of taller and lighter-skinned invaders came down through the mountain passes of the north west and drove the original inhabitants southwards and eastwards into the poorer parts of the country. They themselves occupied the Indo-Gangetic lowlands and gradually built up a religion known as Hinduism. Further waves of invaders came in during the ensuing centuries and in most cases the latest conquerors established a sort of "racial bar" which was partly responsible for the development of the well-known "caste" system. One of the greatest of these subsequent invasions was that of the Moslems who by the sixteenth century had founded the great Mogul Empire, ruled from its capital of Delhi.

Then in the seventeenth century came the Europeans. From time immemorial various peoples had become enriched by the lucrative trade with India and now the newly rising nations—Portugal, Holland, France and England—hastening in the route discovered by Vasco da Gama, established trading settlements at various points. Gradually the English expanded from Madras and the French from Pondicherri until they came into conflict. The struggle which ensued resulted in victory for the English who then encountered considerable resistance from the warlike tribes of the Deccan. These were subdued by the middle of the eighteenth century and by the beginning of the nineteenth century Delhi was in British hands. From this point the position as the one

COAT OF ARMS OF CALCUTTA

paramount power in the country was rapidly achieved and in 1858 the government, previously administered in trust by the East India Company, was assumed by the Crown.

Natural aspect. 1. Physical.—India, in size and isolation a continent rather than a country, is divisible into three well-defined areas:

(*a*) *Himalayas.*—These stupendous mountains, the loftiest in the world, sweep eastwards in scimitar form from the plateau of the Pamirs forming a double barrier along the north of the country. At the western and eastern extremities spurs extend southwards, the former, the Sulaiman range, protecting the frontier down to the sea and the latter, the Arakan Yoma range, shutting out the wild tribes of upper Burma from peaceful Assam. Occasional gateways through this massive wall occur in the west where passes have been traced since ancient times; the most notable of these are the Khyber and the Bolan.

(*b*) *River plains.*—The second division is formed by the wide plains watered by the Himalayan rivers—Indus, Ganges and Brahmaputra. This vast level tract, apart from the hills of Assam, has been built up largely by alluvium brought down from the mountains.

(*c*) *The Deccan.*—The third relief division is the triangular plateau of the Deccan of which Ceylon is a detached portion. Its northern edge rests on a confusion of east to west ranges, chiefly the Vindhya, Satpura and Ajanta hills through which the rivers Narbada and Tapti flow westwards. Along the western side, forming a steep barrier unbroken from Surat southwards within fifty miles of the coast, rise the Western Ghats, from which the triangle at a height varying from 3,000 to 1,000 ft. tilts eastwards to the disconnected range along the opposite edge known as the Eastern Ghats. The main drainage is naturally towards the east and the rivers Mahanadi, Godavari, Kistna and Cauvery make their devious ways by isolated peaks and between low ranges (Palni and Nilgiri) from points within fifty miles of the west coast.

In the north west large areas of the Deccan are composed of rich black soil formed by the decomposition of basalt which flowed out of fissures during a volcanic period.

2. Climate.—India has a monsoon climate which depends in general upon the distribution of pressure over the whole continent of Asia and in particular upon the Middle Indus basin and the Thar Desert. Here in January the temperature is low and consequently air tends to flow from this area. During January and February winds pass down the Ganges Valley but are deflected towards the right and so the largest part of India has cool north-east winds of a dry character, although those which pass over the Bay of Bengal bring some rain to the south-east coast and to Ceylon. During March, April and May temperature rises and with the formation of low pressure systems the south-east trades are deflected to the right, thus becoming the south-west monsoon. Heavy rains fall upon the western slopes of the Western Ghats and then, as with the Chinook, a lighter fall comes to the eastern slopes with an increase further inland. On the whole the Deccan has a very irregular rainfall, and this is frequently the cause of crop failures which used to result in famines. The south-west winds crossing the Bay of Bengal are deflected by the vast barrier of the Himalayas up the Ganges valley towards the Indus valley. By the time they reach the Thar Desert they are dry and since this region is not affected by the south-west winds from the Indian Ocean it suffers from an entire absence of rain.

In general, climate conditions in India can be summarised by dividing the year into four periods as follows:

(*a*) January to February—north-east winds—dry cool period.

(*b*) March to May—north-east winds weakening—dry hot period.

(*c*) June to October—south-west winds —hot wet season and violent storms.

(*d*) October to December—season of the retreating monsoon—south-west winds weakening—north-east winds growing.

3. Native life.

(*a*) *Vegetation.*—From ice-covered mountain peak to sub-tropical and tropical plain, from desert to swamp, India presents a medley of vegetation amazing in colour, variety and form. A dense agricultural population has largely exchanged wild species for cultivated, but jungle, savannah and desert types still abound. Rainfall is the great determiner of vegetation.

Firstly, over the bulk of the country served by half-yearly rains savannah conditions are uppermost. Here, following the usual luxuriance of the wet period, among the common survivors are speargrass, the prickly pear, euphorbias, and the babul or thorny acacia that provides fodder for goats and hardwood for implements.

In the areas of high rainfall types vary from the fetid coastal mangrove swamps with their creepers like ships' cables, to the dense hot forests of the Terai and the Nilgiris where teak, sal, sandal wood, satinwood, palms and bamboo abound, and to the pines and deodars of the Himalayas or the ancient junipers of Baluchistan. Colour is bewildering, ranging from the flowering trees such as the silk-cotton and the flamboyant pink-clustered dhak through a host of shrubs to the flowers which vary from the beautiful lotus of the pools to the curious groups pollinated by birds and those with the stench of carrion to attract carrion flies.

In the desert region where life is possible the tamarisk, the leafless caper, the camelthorn and the artemisia, from which is obtained the drug santonin, are the most outstanding.

Mention of the famous banyan tree has been made in the monsoon section of the first year's course.

(*b*) *Animal life.*—As with the flora, animal life is so abundant that space permits mention of only a few species typical of the climatic conditions under which they live.

Among the Himalayas, types exist from the great jungle animals of the lower forests to the Tibetan sheep and hairy yak of the cold upper altitudes. The tiger, elephant, sambhar and the gaur or bison represent the former class and in higher districts the brown bear and wild sheep and goats. South of the Himalayas is the true home of the Indian fauna and in addition to the above jungle animals the sloth bear, leopard and other members of the cat tribe, blackbuck and nilgai are common. Crocodiles abound in the swamps and monkeys, jackals, swamp deer and snakes are exceedingly numerous. The forests of the Western Ghats and the Nilgiri Hills are particularly rich in animal life amongst which the friendly mongoose must not be overlooked.

(*c*) *People.*—There are about 350 million people in India, nearly 70 per cent of whom are engaged in agriculture. This vast population, more diverse in race and language than are the peoples of Europe, is most dense in the valley of the Ganges, the Punjab and the coast plains.

The great mass are a simple people, illiterate but touched with the refining influence of 3,000 years of civilisation, strongly imbued with the tradition of their forefathers and deeply religious. The family is the strongest social unit and all income goes into the family coffer, the head managing the finance. This idea, whilst a safeguard in times of distress, tends to discourage individual initiative.

In most districts the houses are made of bamboo matting thatched with straw or jute sticks, the roofs being curved to resist the occasional cyclonic storms; outside is the courtyard for drying and threshing the all-important rice crop.

Another type is seen in the former desert district of the Punjab now enriched by the governmental irrigation scheme. Here model villages have been set up with houses glistening with plastered sun-dried bricks.

[Photo: Topical Press.

PLATE L. SCENE AT THE COMMUNAL WELL IN AN INDIAN VILLAGE

"In India village life has two or three thousand years of civilization behind it; and the grace as well as the dust of time is everywhere upon it."

The religions of the people are mainly Hinduism, Mohammedanism and Buddhism, the tenets of the first two being unfortunately fundamentally opposed in almost every respect.

Among the Hindus in particular, the operation of the *caste* system rigidly divides the people into many social classes. A caste is composed of a group of families bearing a common name and usually associated with a particular occupation. The members are bound by an inexorable social law to remain within the circle and this, together with other limitations, creates a severe restriction upon the mobility of labour. These castes have grown until they now number over 2,000, but the main divisions are the Brahmins, or literary and priestly castes, which occupy the top of the scale; the fighting castes; the trading castes, and the artisan castes. Then, outside the system altogether, are the unfortunate "outcasts" who are segregated since their mere touch is defilement to other Hindus. The advent of Christianity and of British rule has done much to alleviate the lot of these people.

The Mohammedans, on the other hand, who number about a third of the Hindus (240 millions), recognise one God only and, theoretically though by no means in fact, have no caste system.

Indian people are notable emigrants and they have played a considerable part in the development of Britain's tropical possessions. They have gone as coolies or as traders, often in order to free themselves from caste restrictions, to such places as Malaya and the West Indies. In Natal and Kenya competition between them and the native blacks and the white races has led to restrictions which in turn have often aroused ill-feeling.

Occupative aspect.—1. Agriculture is the predominant occupation of the Indian people, over 66 per cent of the population being dependent upon it for their existence. As with the natural life of the country, a bewildering variety of crops is grown. This is largely due to the division of the year into two seasons by the weather conditions in most parts. Most of the population live on grain crops, for the great numbers of cattle are useful only for milk and as draft animals. The cow, a sacred animal to the Hindu, is allowed to live even if in a diseased condition and this largely accounts for the wretched condition of the cattle in India.

Crops.—227 million acres are sown at least once annually, the relative importance of different food crops being seen by the following figures representing land sown in millions of acres:—Rice 83, millets 42, wheat 36, gram 16, other grains and pulses 25.

Rice is grown chiefly in the well-watered lowlands of the coastal plain and the Ganges basin. Millets generally occupy those areas of the Deccan and the Indus valley where wheat and rice cannot be cultivated on account of the lack of moisture or poor soil. The chief wheat-producing areas are the Punjab, the north of the Deccan, and the upper Ganges plain, where it is grown as a winter crop, being sown just before the summer rains cease. For the remainder of the growing period the crop is dependent upon irrigation. Pulses are grown almost everywhere except in lower Bengal and form a substitute for meat in the Indian diet.

Commercial crops are increasing in importance with the rapid development in arrangements for supplying improved seeds and educating the people in the method of production. The following figures, as above, give a general estimate of their relative importance to-day:—Oilseeds 17, cotton 24, sugar cane 3, jute 2½. Tea occupies 816,000 acres, coffee 180,000 and indigo 42,000.

Oilseeds are widely grown over the Deccan and the Ganges plain, whilst cotton occupies the black soils of the north-west Deccan. The crop, mostly of the short-staple variety, is being improved and is either exported to Great Britain and Japan or absorbed in the Indian cotton industry. Plantations also occur where there is irrigation in the south-east Deccan and the Indus plain.

Jute is grown in the lower Ganges and Brahmaputra valleys and in the Sunderbans, and is the second most valuable export.

Tobacco of rather poor quality is grown in lowland areas especially in the provinces of Madras and Bengal but sugar, once of an inferior type, has now been vastly improved by the introduction of new varieties.

Indigo and opium are not produced on such a large scale as in the past. Since the development in the chemistry of dyes the demand for the former has fallen off considerably and the latter is now restricted to medicinal use only.

Tea which requires heat and heavy rainfall, but yet demands a well-drained soil, is grown on the hill slopes of Assam, southern India and Ceylon. The plant is picked several times in one season, and in the south as many as eight "flushes" are obtained. Coffee is confined to southern India and Ceylon; the production of this crop is rising after having declined considerably in recent years owing mainly to a disease which affected the crop some time ago.

Methods of cultivation.—India is essentially a land of the small farmer, the multitude of small plots being characteristic of the divisions imposed by family laws. This makes for a great waste of time and land and precludes the use of machinery. Most of the cultivation is done by hand and the farmers are generally extremely poor.

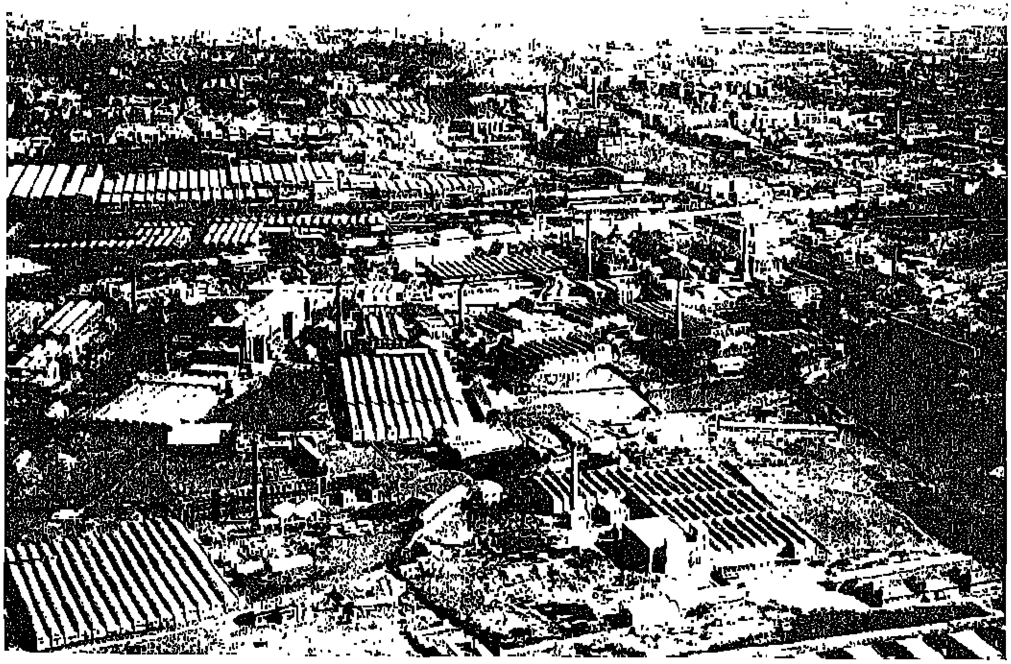
The strength of tradition and the immense size of the population greatly impede the spread of scientific guidance but, by the introduction of demonstration plots in the villages and the foundation of seed farms and stores, the work of the new agricultural research institutes is making headway. Irregularity of rainfall has always been a serious problem but to-day this is being dealt with successfully by governmental schemes for irrigation on a vast scale.

Four methods of irrigation are practised in India, three of which, native in origin are: (1) *Tank* irrigation in which water is stored in reservoirs, a method chiefly confined to the southern Deccan; (2) *well* irrigation found mainly in the upper Ganges plain, and (3) *flood* irrigation, a widespread system whereby channels are cut which lead flood water from the rivers over the surrounding country.

The fourth type has been introduced by the Government and is called *perennial* irrigation. In this system dams are built across large rivers behind which water can be stored and led off through canals when required. The chief areas where these projects have been put into practice are the eastern Deccan and the upper Ganges and Indus valleys. The great "Sukkur" Barrage on the Indus and the "Triple Canal Project" in the Punjab are two recently completed works.

Despite innumerable difficulties both in construction and in settling thousands of new colonists, these governmental schemes are meeting with great success. In one instance only, the Chenab colonisation scheme, semi-desert land equal in area to the four south-eastern counties of England, now produces four million pounds' worth of crops annually.

2. Secondary industries.—Although the Indian workman is capable of fine work,



[*Photo: Aerofilms, Ltd.*

PLATE LI. BOMBAY (NOTE THE NUMEROUS FACTORIES)

Coat of Arms of Bombay

he has not yet learnt to adapt himself to the demands of factory life, and the ancient handicrafts of the villages still rank of first importance in supplying the people's requirements. Industry is, however, making headway and at the present time there are about 10,000 factories, employing nearly two million people, distributed among the chief towns. The following figures of the numbers of establishments will give an idea of the relative importance of various trades:—Cotton processes, 2,379; rice mills 1,552; tea factories 880; oil mills 237; printing and bookbinding 364; jute processes 213; general engineering 271; sugar factories 213.

The cotton industry is centred about Bombay although it also flourishes in the Central Provinces, in such towns as Allahabad and Cawnpore and around Madras.

The major part of the production is in the coarser counts, due partly to a lack of skill in the operatives and partly to the short staple Indian cotton which is inferior for spinning.

The jute industry, a modern development, centres particularly in Calcutta. It is a highly important trade and the mills are able to supply the world's needs for sacking.

Metalworking is widespread and is improving since the greatly increased production of iron ore from Behar and Orissa (2·4 million tons). Steel, galvanised sheets, nails and wire are important subsidiaries and a number of yards have been established for railway repairs and motor and coach-building works.

Among the most important minerals worked are coal, petroleum (Assam), salt, silver, gold and manganese.

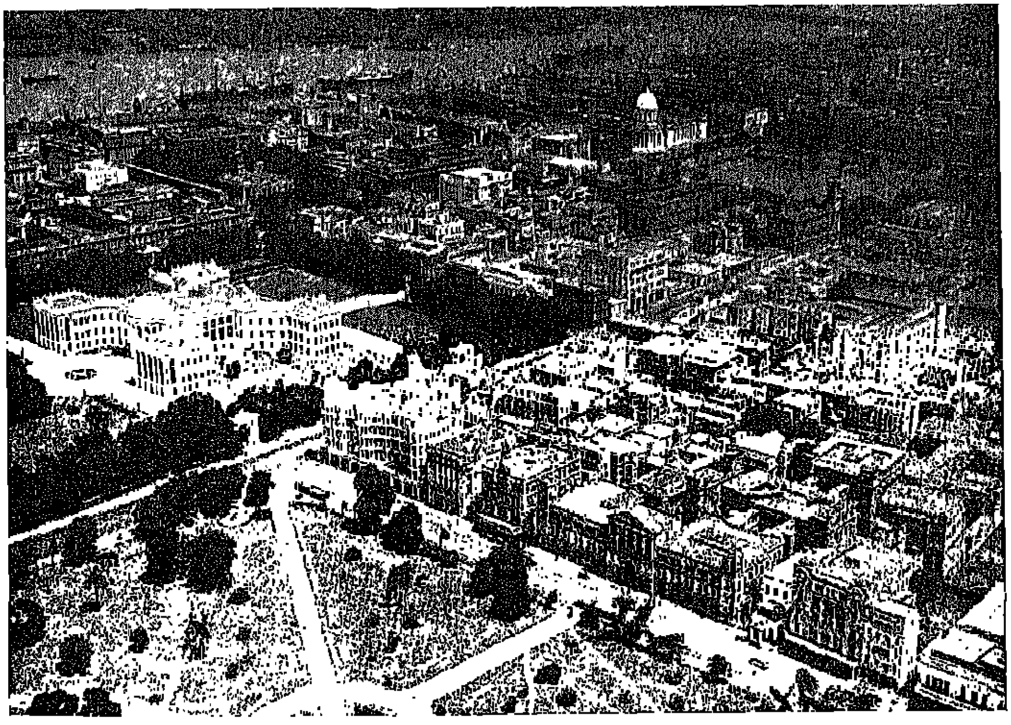
Communications and towns.—Wheeled traffic rolled along Indian roads as early as 3000 B.C. and little by little successive Indian monarchs carved out their royal highways between the main towns that were the originals of the grand trunk system of to-day. Some 80,000 miles, somewhat dusty, are metalled and sound for motor traffic but another 150,000 are sadly worn by the strings of creaking bullock carts (8½ millions in the country) and camel-drawn wains.

Railways began in 1853 from Bombay and since then some 40,000 miles have been pushed through malarial swamp and mountain gorge until now the entire country is traversed. Great advantages have come from the undertaking in stimulating trade, minimising the dangers of famine and acting as a unifying agency in the government of the country.

The railway "net" can best be remembered if it is related to the four great ports of Calcutta, Bombay, Karachi and Madras.

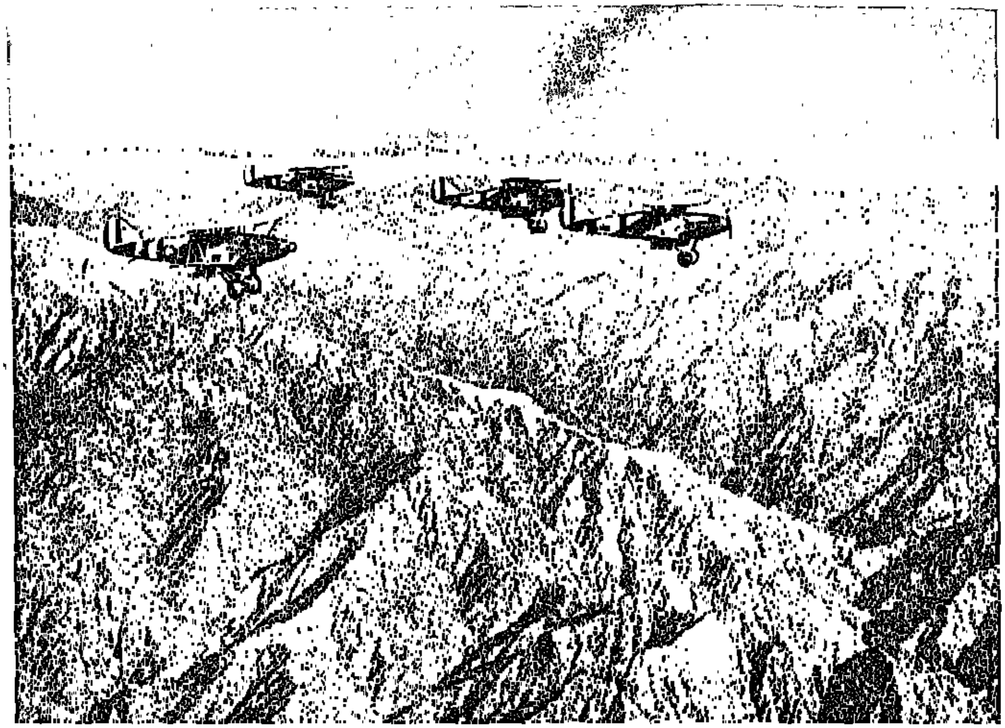
1. *From Calcutta* an important line runs up the Ganges plain to the watershed at Delhi. Calcutta (Plate LII) (pop. 1,485,582), standing on the Hugli, eighty miles from the sea, is the chief port for the Ganges valley and has a large variety of industries. From it a line runs to Darjeeling, the summer station for Europeans in the Assam hills.

On its way to Delhi the line passes through Patna, the centre of a rice area; Benares, the Holy City of the Hindus, and Allahabad, a railway junction at the confluence of the Jumna and the Ganges and an important cotton manufacturing town. Cawnpore, which is now a cotton and leather manufacturing town, is the next town on this route and is followed by Agra which at one



[*Reproduced by courtesy of Imperial Airways, Ltd.*

PLATE LII. AIR VIEW OF CALCUTTA



[Central Press Photos.

PLATE LIII. FOUR R.A.F. MACHINES FLYING OVER THE INDUS VALLEY ON THEIR WAY TO GILGIT
The R.A.F. are playing a prominent part in the work of policing the North-West Frontier.

time was an important city of the Mogul Empire and which contains many monuments of that period, including the Taj Mahal.

The next town is Delhi, the capital of India, which is situated on the watershed between the Indus and the Ganges, and in the gap between the Aravalli Hills and the Himalayas. Simla in the Himalayas is the summer hill station for Delhi.

North-west of Delhi the line passes through Lahore, the chief city of the Punjab and the centre of a great wheat growing region, to Peshawar which guards the Khyber Pass route. Srinagar, not served by the railway, is the capital of the native state of Kashmir and is an important caravan centre for routes from central Asia.

2. *From Karachi* (pop. 263,563), the chief port for the Indus valley, a line runs through Multan near the confluence of the Punjab rivers to Lahore. Its position makes Multan a natural centre for the products of the Punjab, principally wheat.

Bombay (Plate LI) (pop. 1,161,383) is built on an island, is the chief cotton-manufacturing town of India and is a great port. The Western Ghats rise steeply behind the town, and the line runs along the coast plain northwards via Surat to Delhi whilst another climbs through gaps and passes on its way to Jubbulpore, a cotton-manufacturing centre, and thence to Calcutta via Allahabad. An alternate route to Calcutta passes through Nagpur, situated in the centre of a great cotton-growing area.

3. Lastly, *a line from Bombay* runs by way of Poona, a hill station, to Madras (pop. 647,230), the town from which British influence first spread over the Peninsula.

Madras is the great port for eastern India, but it lies on a shallow surf-beaten coast and has no natural harbour. The city is connected with the port of Calicut on the west coast by a line passing through the Palghat Gap, the only great pass in the Ghats between Bombay and the extreme south.

Statistics.—The figures represent millions in each case:

Livestock		*Exports*	£	*Imports*	£
Oxen	83·9	Cotton products	36·7	Cotton products	17·4
Buffaloes	29·4	Jute products	31·9	Machinery	10·6
Sheep	22·1	Tea	15·0	Iron & steel	3·8
Goats	26·1	Oil seeds & cake	15·5	Other metals	3·3
Horses	1·4	Rice	8·7	Motor cars	2·8
Donkeys	1·4	Metals & ores	6·0	Other vehicles	3·1
Camels	·5	Hides & leather	8·9	Instruments	3·9

Nearly half of the foreign trade of India is with the United Kingdom, the next best customer being Japan.

Ceylon.—Ceylon is a Crown Colony administered by a Governor, containing nearly 5½ million people, mostly Sinhalese, who are descendants of ancient settlers from the valley of the Ganges.

The tropical climate of the island is tempered by the altitude and the sea and is healthy excepting in the low-lying jungle. Thick forests cover one-fifth of the island; another fifth is cultivated, whilst the remainder is covered with scrub forest or grassland awaiting development.

The relative importance of the chief crops can be estimated by the following figures showing the acreage, in thousands, under cultivation:—Coconuts 1,100; rice 850; rubber 628; tea 557; cacao 34; cinnamon 26.

Cinchona is a very important tree from the hill slopes.

Among the mountains are worked many small mines of rubies, sapphires and other precious stones whilst deposits of plumbago form a valuable item of export.

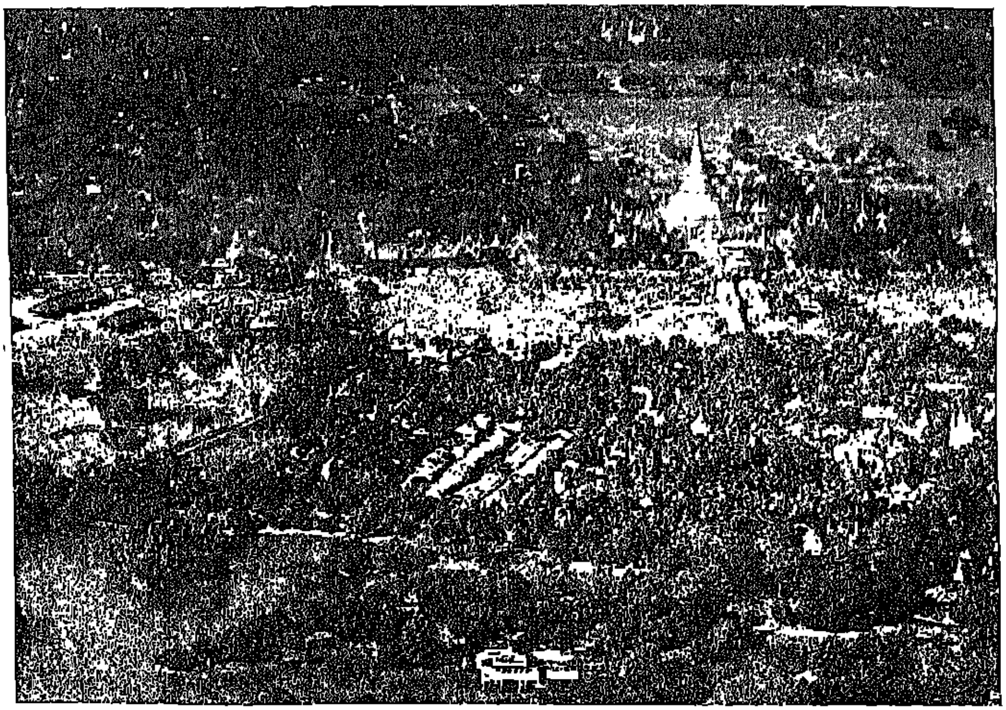
Industrial activity is small, most work being confined to cottage crafts such as weaving, lacquer work, tortoiseshell ware, pottery, etc.

Colombo (pop. 284,155) the capital, connected by rail to Kandy the ancient capital, has an excellent artificial harbour and is the chief port of the island. It is also a port of call on the routes from Europe via the Suez Canal or South Africa to Calcutta, Australasia, and the Far East.

Burma. 1. General considerations.—In April, 1937, Burma severed her administrative connection with India and became an autonomous state with a Secretary of State for Burma in Whitehall and its own Governor. The country has always been distinctive from other Indian States; a massive mountain wall separates the two nations and, racially, the peoples have little in common, the Burmese being more akin to the Chinese, mainly Buddhist in religion and undisturbed by caste systems.

From north to south Burma is traversed by the fold ranges of the Arakan and Pegu Yomas between which lie the soft rocks forming the valley of the Chindwin and the lower Irawaddy. In the east lie the old hard rocks of the Shan plateau through which runs the Salwen river.

Most of the population of nearly 15 millions are Burmese but there are about a million Indians, another million aboriginal people who inhabit the almost unattainable hilly districts and plateau and also in the east, where there is a collection of native states—the Federated Shan States populated by a bewildering mixture of races and tribes.



[*Photo*: "*The Times*".

PLATE LIV. AIR VIEW OF PART OF RANGOON, INCLUDING THE SHWE DAGON PAGODA, ONE OF THE MOST FAMOUS BUDDHIST PLACES OF WORSHIP IN THE WORLD

Modern Rangoon owes much to the vision of Lord Dalhousie, who visited Rangoon soon after its annexation in 1812, and to the subsequent town planning of a Major Fraser of the Royal Engineers.

2. Climate, vegetation and crops.—As the country is mostly between the tropic of Cancer and the equator, Burma is a land of three seasons, cold from November to February (60° to 90° F.), hot from March to May (90° to 104° F.) and rainy, becoming wettest in July. The annual rainfall (100 in.) varies, the coastal regions having over 200 in., whilst the dry, central zone has anything from 25 to 40 in.

Where the rainfall is heaviest (over 80 in.), equatorial evergreen forests are found, whilst monsoon forests occur in districts having a 40–80 in. annual rainfall. These latter range between the rivers Irawaddy and Salwen for some 150,000 square miles and, where accessible, are invaluable for the supplies of teak, cabinet woods, bamboos, woods for railway sleepers and tool handles besides such products as cutch and lac. More than 70 per cent of the world's demands for teak, representing an annual value of 2½ million pounds, are supplied by these forests.

The trees are felled after having been girdled and allowed to season for three years. They are then specially "logged" or marked by skilled workmen for cross cutting and then hauled to the nearest road or watercourse. Motor haulage is of little value as trees are scattered and the country difficult; accordingly, all the heavy work is performed by elephants or by buffaloes.

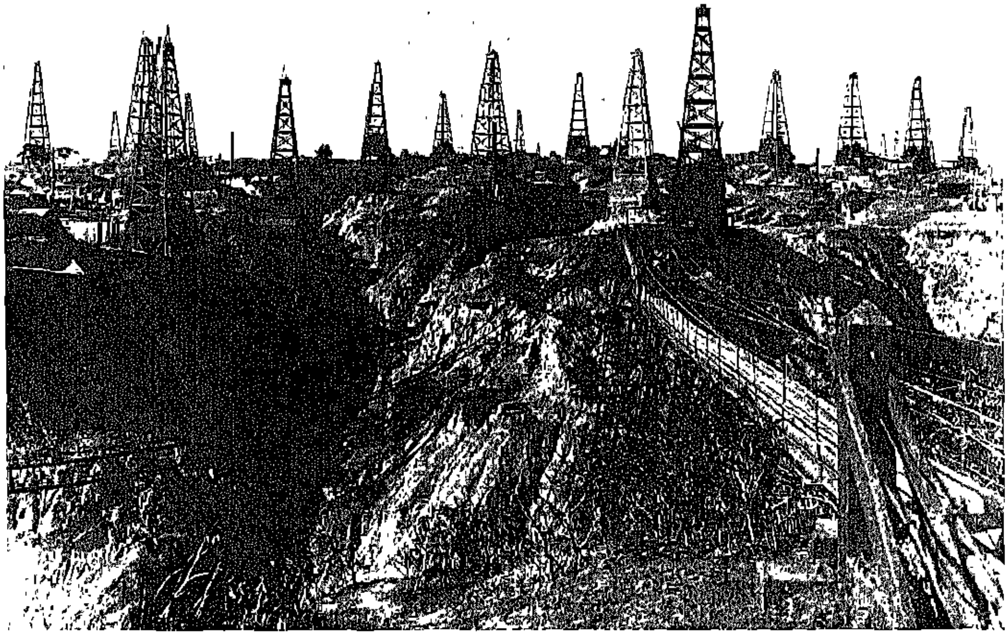
Areas with less than 40 in. of rain per year are covered with scrub or grass, and such crops as millet, cotton, beans, sesamum and ground nuts are cultivated in clearings.

Most of the cultivated land, however, is on the alluvial plains and deltas of the great rivers, two-thirds of it being employed in growing rice. Burma's yearly export of rice, 3½ million tons and the largest in the world, is sent either parboiled to India or as "loozain," i.e., husked, ready for milling to European countries. A poor-quality tobacco is widely grown mainly for home consumption.

3. Minerals.—The mineral wealth of Burma is considerable. At Mogole in the north rubies and other precious stones are mined and at Badwin and Heho there are large deposits of silver and lead ores. Tin and wolfram occur in Tenasserim whilst there are considerable scattered deposits of poor quality as yet untouched. By far the most important mineral is petroleum, which occurs in the sandstone rocks lying between the Yomas and the Shan plateau. The existence of oil at Yenangyaung (smelly water creek) was known for centuries but it was not until late in the nineteenth century that its extraction was put on a commercial footing, Plate LV. Another great field was opened at Singu and now the oil is transported either by a 300-miles long pipe line to the Syrian refineries near Rangoon, or on special floats down the Irrawaddy. Many oil products are manufactured from the highest grade aviation spirit to lubricating oils, greases and paraffin wax candles.

Burma now produces about a million tons of oil each year and the industry gives employment to 22,000 people. Nevertheless this output is only one-half of 1 per cent of the total world production.

4. Communications.—The most important highway is formed by the Irrawaddy and its tributary the Chindwin. River transport is very important and much of the agricultural



[*Photo: T. N. Ahuja & Co., Rangoon.*

PLATE LV. THE YENANGYAUNG OILFIELDS

[*Reproduced by courtesy of Messrs. Steel Brothers & Co., Ltd.*

Plate LVI. Teak Rafts on the Irrawaddy at Prome

produce of the state is handled in this way. Sailing craft are widely used but in addition to these a fleet of craft from 330 ft. steamers to 85 ft. launches make a busy thoroughfare of the network of waterways.

Burma has now an extensive service of railways. The main line runs up the Sittang Valley from Rangoon to Mandalay and Myitkyina in the north east, whilst another line runs from Rangoon to Prome on the Irrawaddy. "Feeder" lines join these two main ones at various points.

Road construction has developed rapidly in recent years and there is now a good main road from Rangoon to Mandalay.

5. Towns and trade.

Rangoon (pop. 400,415), the chief town of Burma (Plate LIV), is the seat of the Government and handles 86 per cent of the trade of the country. It is situated on one of the branches of the Irrawaddy, and is a river port. Rice, oil, timber and minerals are the chief exports, whilst cotton goods, machinery and coal are the principal imports.

Mandalay (pop. 147,932), an old capital of Burma, is situated in the dry belt which has always been the natural centre of Burma on account of its accessibility.

Pegu, Manbin and Bassein, a small port, are rice-collecting centres in the delta region.

Akyab, Moulmein and Mergui are other minor ports.

Memory work.—1. India, the largest member of the British Commonwealth in Asia, lies mostly south of the tropic of Cancer and is part of the monsoon region of the world.

2. As with all such lands, it has been thickly populated since very ancient times, the people depending upon the abundance of nature for their living.

3. The great feature of all forms of natural life in India is the enormous variety.

4. Excepting for the passes in the north west, through which invaders and trading caravans passed, the country is walled in by tremendous mountains, more than a hundred peaks being over four miles high.

5. The two greatest river systems that have brought great fertility to the northern plains are those of the Ganges and the Indus.

6. The lower part of India is a triangular plateau known as the Deccan, covered in parts with rich, black volcanic earth.

7. Nearly three-quarters of the people are uneducated and work tiny farms mostly by hand. Altogether there are 700,000 villages.

8. There are about 200 million cattle in India, that is, three times as many as in the next greatest cattle country (the U.S.A.), but they are of very bad quality and also sacred to Hindus and so are not used for food.

9. The chief cities and ports of India are Calcutta, Bombay, Madras and Karachi. Rangoon is the great port of Burma.

10. The main exports are, from India, cotton, jute, tea and oil seeds; from Burma, rice, teak and petroleum oils and spirits; from Ceylon, coconuts, rubber, tea and rice.

Activities and exercises.—1. *Questions:*

(*a*) Sesamum, gram and ground nuts are Indian products. What are they used for?

(*b*) On what plant is cochineal found and what is it?

(*c*) In tropical countries why is a dry part hotter than a wet part? (In Burma, Mandalay is hotter than Rangoon, but notice their positions on the map.)

(*d*) What is an important difference between an Indian and an African elephant?

(*e*) Why are the roofs of Indian houses curved and not straight like those in England?

(*f*) In a certain poem by Rudyard Kipling he speaks of a lady smoking a "whackin' white cheroot." Try to find out the name of the poem and why the cheroot was white.

(*g*) What is the most important way of defeating famine in India to-day?

2. *Diagrams.*—Show by coloured diagrams on graph paper, either, the chief imports and exports of India from the statistics given, or the relative heights of the following mountain peaks:—Everest 29,000 ft.; Kinchinjunga 28,000 ft.; Robson Pk. (Rockies) 13,700 ft.; Mt. Blanc (Switzerland), 15,800 ft.; Mt. Snowdon (Wales) 3,500 ft.

3. *Collection.*—Specimens of Indian handicrafts are frequently met in many homes. A collection on loan from amongst the children forms an interesting exhibition.

4. *Pictorial work.*—Make sketches for your notebook of typically Indian scenes: a camel caravan, elephants moving teak, an ox waggon; a scene round the village well; a group of pelicans (swamp birds).

5. For *written work* write two vivid paragraphs describing the scene shortly before and immediately after the coming of a monsoon.

LESSON UNIT VIII—THE COLONIAL EMPIRE

Introduction.—The Colonial Empire comprises the third great class of territories as indicated in Lesson Unit I and includes the Mandated Territories.

There are three classes of mandates:

"*A*" *Mandates*, which are the former Turkish communities of Palestine and Transjordan, which while provisionally recognised as independent nations have to accept temporarily advice and assistance from the mandatory power.

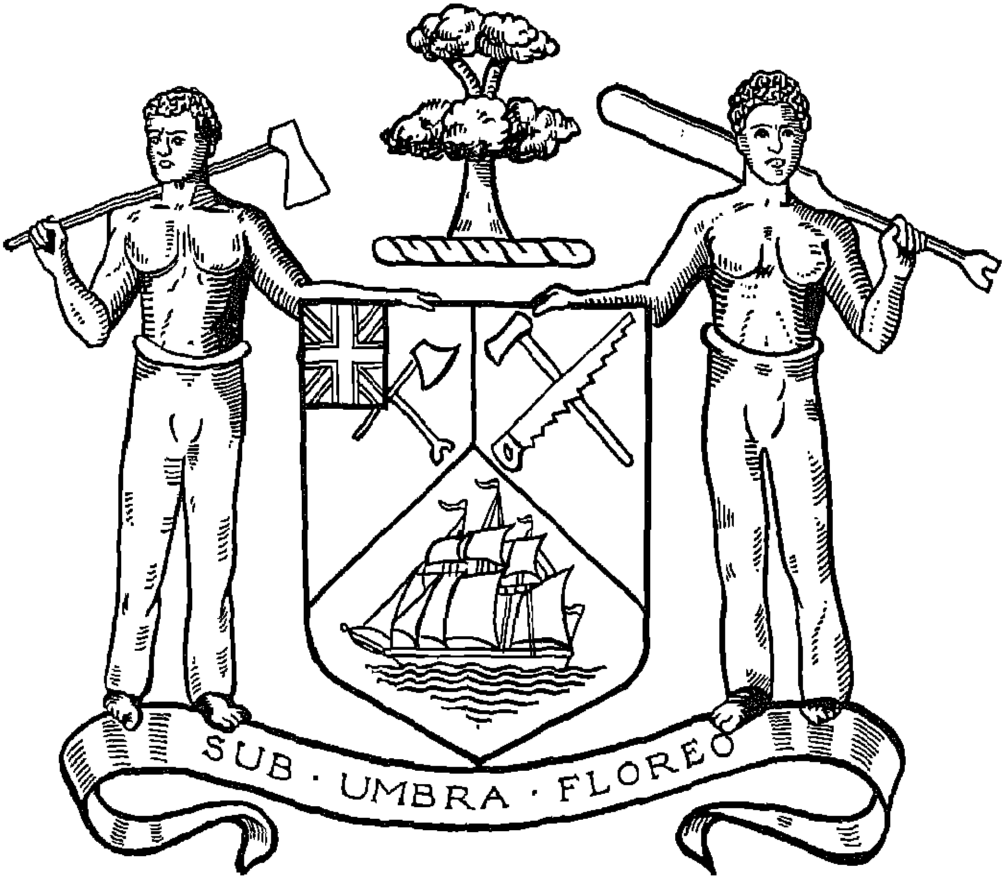
"*B*" *Mandates*, chiefly African communities which are administered by a power which guarantees freedom and public order and equal opportunities for trade. Tanganyika, British Togoland and British Cameroons fall under this class.

"*C*" *Mandates*, which are mainly sparsely settled areas administered according to the laws of the mandatory power as a part of its territory, subject to safeguards in the interests of the population. This class includes South West Africa (under the Union of South Africa), Nauru (under Britain), Western Samoa (under New Zealand) and part of New Guinea (under Australia).

Certain of the territories geographically related to South Africa and India have been studied already; the remaining ones include, in *Africa*, the British West African Territories, the British East African Territories and the Anglo-Egyptian Sudan; in *Asia*, the Malay States, the Straits Settlements and parts of the East Indies; in South America, British Guiana.

The peculiar gift of the British race for government can be seen in the happy relations existing among the contrasting types of people of the Colonial Empire. In Africa in particular there are found peoples living quite close together who are different as regards race, language, culture and mode of life. Thus, in the east, the warlike, pastoral Masai live very near to the quiet, agricultural Wa-Sukuma.

Under such conditions government is adjusted to local conditions. The "policy of indirect rule" originated by Lord Lugard in Nigeria is the one generally adopted (Lesson Unit 1). Health and education are other important problems which are being dealt with. Much disease in tropical colonies results from insect pests and great efforts are being made to eradicate these.



Coat of Arms of British Honduras

BRITISH WEST AFRICAN TERRITORIES

General considerations.

History.—The first contacts by white people were the trading posts established by the Portuguese in the fifteenth century, whence the slave trade started by the Arabs long before developed on a large scale with the growth of European colonies in America. The Portuguese introduced many new crops from their other tropical colonies including the pineapple, cassava, ground nuts, yams, maize, oranges, limes, sugar cane, tomatoes, red pepper, onions, the guava, and the paw-paw.

No appreciable efforts were made to acquire territories until after the remarkable journeys of Mungo Park, a young Scottish doctor, into the interior of west Africa between the years 1795 and 1805. Then, following upon the end of the Napoleonic wars, much further exploration led to a scramble for land by the chief European powers and by the end of the nineteenth century various partition treaties had been arranged settling in the main the areas to be controlled by interested nations.

Physical.—In West Africa the land rises rapidly from a narrow coastal plain to the plateau of the interior from the highest part of which the Senegal and the Gambia flow west, and the Niger north east. This north-eastward flowing section once emptied into an inland sea which lay near Timbuktu but it was "captured" by a south-eastward flowing river which cut back and drained the inland sea. This accounts for the semi-circular course of the Niger, and is a good example of "river capture."

Climate and vegetation.—There are three belts of vegetation in West Africa which run parallel to the coast. Firstly, there is the coastal equatorial forest, once known as the white man's grave until the discovery by Sir Ronald Ross in 1898 of the germ-carrying powers of mosquitoes, led to great efforts being made to exterminate the pest. Even now the humid climate is very trying to Europeans who find it necessary to return to England at frequent intervals (Av. temperature 85° F. Rainfall 100 to 140 in.).

The second belt of vegetation is the savannah land of the plateau with its summer rain and hot dry winters. The third belt lying north of this is semi-desert, with very short wet summers, and hot dry winters (av. rainfall 25–40 in.). Here temperatures in winter are exceedingly variable, ranging from 40° F. to 115° F. The curious winter conditions are occasioned mostly by the *harmattan*, a dry dust-laden north-east wind that blows intermittently from the Sahara.

Nigeria.—Nigeria is the largest wholly tropical colony in the Empire, with an area three and a half times as great as that of Great Britain and a population of 20 millions.

Since the territory is unsuitable for permanent white occupation, most of the inhabitants are natives of typical negro stock. Scores of tribes and languages are present and the people vary from backward untractable types to the considerably advanced Fulas or the Housas of the northern parts.

Great care has been taken in administration to maintain native customs as far as possible. For example, the system of individual ownership of land is unknown in Nigeria. The land belongs to the tribe and each member of the tribe is entitled to as much as he can use. If he relinquishes his tenure, the land is allotted to someone else by the chief. Thus the British Government does not permit white people to buy land for plantations, and all production is in native hands.

Scientific agriculture is unknown and the tribes practise "shifting agriculture," that is, when their land is exhausted they move on to a new clearing.

The southern forest area is occupied by agricultural peoples; they tend to live together in towns, some of which have over 50,000 inhabitants although most of the houses are of mud and thatch.

The outstanding commercial product of the region is the fruit of the oil palm, oil and kernels being leading items of export. Other products of the coastal plain are valuable woods such as mahogany, cocoa and coconuts.

The chief crops of the savannah region are ground nuts, kola nuts, yams, short staple cotton, millets and maize.

Nigeria is a very important tin-producing area contributing over 5 per cent of the world's supply of that metal. It is found as tin oxide in the alluvial deposits of the Bauchi plateau.

Coal is mined also in the extensive fields at Udi.

Port Harcourt serves the Udi and Bauchi areas and a railway line runs through them from that town to *Kano* an important market town for the Sudan of 80,000 inhabitants.

A line runs from Kano to *Lagos* (pop. 130,000) the capital and chief port of Nigeria. Lagos is the only port on the west coast with a good natural harbour, since in most parts the sediment swept along by the Guinea current forms a bar offshore, whilst the coast itself is straight and fringed with lagoons.

Items of export other than those mentioned are ground nuts, cotton lint, hides and skins, gold and cocoa.

Gambia.—This long, narrow territory of savannah country is the oldest British possession in west Africa (seventeenth century). The river, navigable for 300 miles from its wide mouth, is the natural highway. Ground nuts form over 96 per cent of the total exports, others being palm kernels, hides and beeswax. *Bathurst* (pop. 14,370) the capital is a port of considerable importance, within 10 days' transit from London.

Gold coast.—This area, comprising the Gold Coast Colony, Ashanti and the Northern Territories, is a land of considerable modern development.

Agriculture by the natives is the main occupation, the outstanding crop being cocoa. Nearly half the world's supply is grown and 80 per cent of it is imported to Great Britain. Minerals valued at over four million pounds are also exported; gold is outstanding, others being manganese and diamonds.

Accra (pop. 69,057), the capital, and *Secondi* are ports but have no natural harbours. Vessels have to anchor a mile or so offshore and land their passengers or cargo by means of surf boats. In 1928, however, a good artificial harbour was completed at *Takoradi* and this now deals with most of the sea-borne traffic.

Great efforts are being made to improve health conditions along the coast. Sanitary arrangements are modernised in all the large towns, pipe-borne water supplies instituted and electric lighting established.

Other modern developments include railway services to the main centres and good motor roads—in the dry season—leading in all directions.

Sierra Leone.—This coastal colony of some 210 miles in length was originally established as a home for freed slaves towards the end of the eighteenth century. There is also a Protectorate over adjoining territories extending northward and eastward for about 210 miles.

Palm kernels are the chief export crop whilst hill rice is the main food crop. Swamp rice, kola nuts, ginger, pepper and piassava are other products.

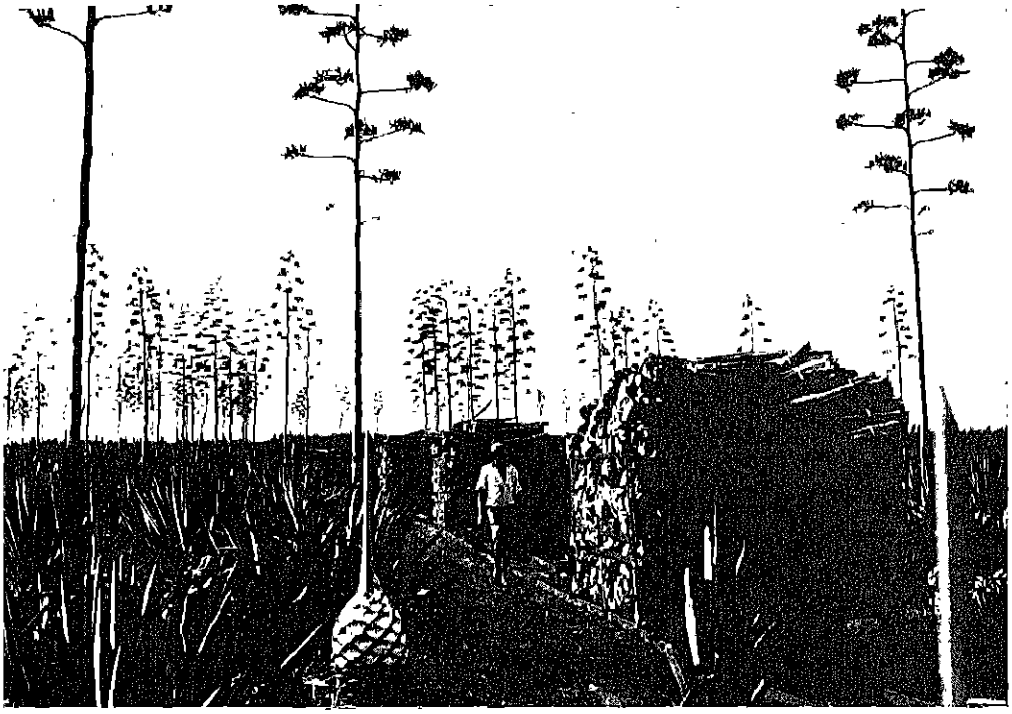
The minerals include rich deposits of iron ore and considerable quantities of gold, diamonds and platinum.

Freetown, the capital, is the finest seaport in West Africa. It is connected by rail with the interior and is also a coaling station.

BRITISH EAST AFRICAN TERRITORIES

General considerations.

Physical.—These territories, comprising Uganda, Kenya, Tanganyika, Nyasaland, Northern Rhodesia and Zanzibar, form part of a great plateau ridge which joins up the



[Reproduced by courtesy of Imperial Airways, Ltd.

PLATE LVII. LOADING SISAL ON TO RAIL TRUCKS NEAR NAIROBI, KENYA

orthern and southern parts of the African lateau and which is crossed by two branches f the Great African Rift Valley running rom north to south. These branches con'erge at the northern end of Lake Nyasa nd the single valley ends towards the outh of that lake. The plateau itself varies n elevation from 4,000 to 7,000 ft., whilst he valleys are approximately 1,500 ft. deep nd have wide floors in parts fifty miles cross. The eastern branch contains the akes Albert, Edward, Kivu and Tanganyika nd the western branch, Lake Rudolf. Lake Victoria lies in a hollow on the plateau and s not a rift lake.

The high peaks of Kilimanjaro, Kenya nd Ruwenzori are permanently ice-capped nd among the many signs of volcanic ctivity the crater of Ngorongoro is particuarly remarkable. It lies about 2,000 ft. elow the level of the surrounding land, has a circumference of thirty-five miles and its floor provides a natural game preserve containing thousands of wild animals.

Climate.—There are two climatic zones in East Africa: the hot, moist coastal plain with an equatorial type of climate, and the plateau zone where conditions are greatly modified by elevation. The rainfall régime is the same as in equatorial regions with maxima soon after the equinoxes. The total amount, however, is much less owing to cooler conditions and consequently the natural vegetation is mainly savannah. Permanent white settlement is possible in regions above 5,000 ft.

Population problems.—European colonisation has considerably unsettled the tribal life of the region since in many parts, particularly in Southern Kenya, the natives have been robbed of their grazing lands and forced to migrate to less fertile areas. Certain lands have now been reserved for white settlement and the remainder has been left for the natives. Native labour is difficult to obtain since the people prefer to work on their own plantations rather than to accept the low wages offered by whites.

Indian immigrants also claim equal rights with Europeans in matters of land ownership and representation. At first they came as labourers on the Uganda Railway but now many of them control a considerable proportion of the internal trade of Kenya.

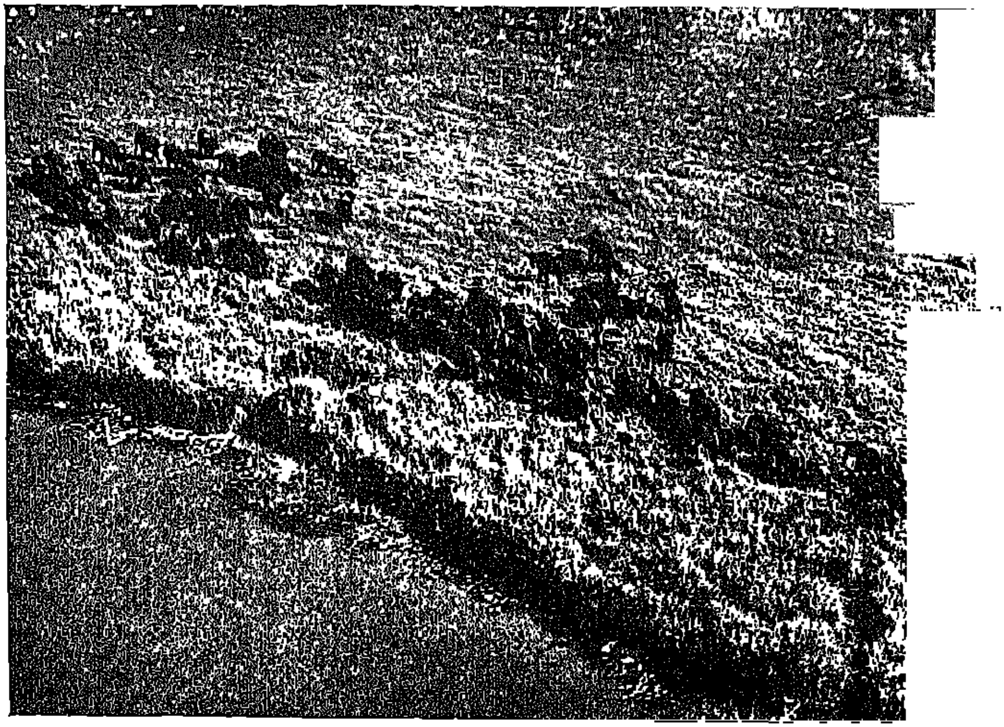
The following population figures show at a glance why Europeans fear that a loss of control would follow a submission to the Indians' claims: Natives 3,000,000; Indians 42,000; whites 18,000; Arabs 13,000.

Relations in Uganda are less strained since the land is lower and European settlement much less extensive. Every encouragement is given to native kings and chiefs to govern their own subjects with the assistance of native councils, direct administration being reserved for the raising of revenue, defence and other major matters.

In the mandated territory the welfare of the native inhabitants is the chief concern of the government.

Occupative aspect.—1. Products.—Agriculture is the main concern of the people of East Africa although large numbers of cattle are maintained by the native pastoral tribes. In Kenya plantations are generally in the hands of the whites but in Uganda and Tanganyika native ownership is strongly marked. Crops in general show a similarity in the various territories though in each case a particular one is outstanding.

Uganda.—Cotton of good quality is first, other products being coffee, sugar, oil seeds,



[*Reproduced by courtesy of Imperial Airways, Ltd.*

PLATE LVIII. SAVANNAH COUNTRY, WITH HERD OF ELEPHANTS tobacco, hides and skins, timber, tin ore and ivory.

Kenya.—Conditions permit great variety, the fertile land varying from sea level to 9,000 ft. Coffee is the outstanding crop of the highlands with maize, tea, wheat and sisal hemp, Plate LVII. In the tropical lowlands are sugar, coconuts, cotton and ground nuts. Cedar is an abundant timber. Sheep and cattle rearing is greatly increasing with European occupation. Minerals include gold and silver.

Nyasaland.—Tobacco is the most important product, followed by cotton, tea, coffee, fibres, chillies and ground nuts.

Zanzibar and Pemba.—These islands have almost a monopoly of cloves. The plantations, controlled mostly by Arabs, contain over three million trees in bearing. Copra is also very important and the territory has become a storehouse for the East African coast.

Tanganyika.—Sisal hemp is the chief crop, mainly under white control owing to the extensive machinery required for separating the fibre from the swordlike leaves. Other products are tea, cotton, coffee, ground nuts, hides and skins, beeswax, copra, ghee, sesamum, diamonds and gold.

[Reproduced by courtesy of H. Shepstone, Esq.

PLATE LIX. NATIVES OF MASAI TRIBE, TANGANYIKA

2. Routes and towns.—Much of the progress which has been made in East Africa is a result of the construction of railways, the chief of which is the Kenya and Uganda system running from Mombasa to Kampala with links to important centres.

Mombasa is the chief port of Kenya. Half the inhabitants, which number 55,000, are natives, the remainder being mainly Indians and Arabs with only about a thousand whites. From here the Uganda Railway climbs to the plateau and passes through Nairobi (pop. 50,000), the capital of Kenya, and thence to Kisumu, a port for Kenya on Lake Victoria. Kampala is the commercial centre of Uganda.

Tanganyika Territory is served by a line which runs from Dar-es-Salaam ("The House of Peace") to Kigoma on Lake Tanganyika. Dar-es-Salaam is the chief port of the territory whilst Kigoma is a lake port from which steamers cross to Albertville in the Belgian Congo.

Nyasaland is connected by rail from Blantyre to the Portuguese port of Beira with a connection to Salisbury.

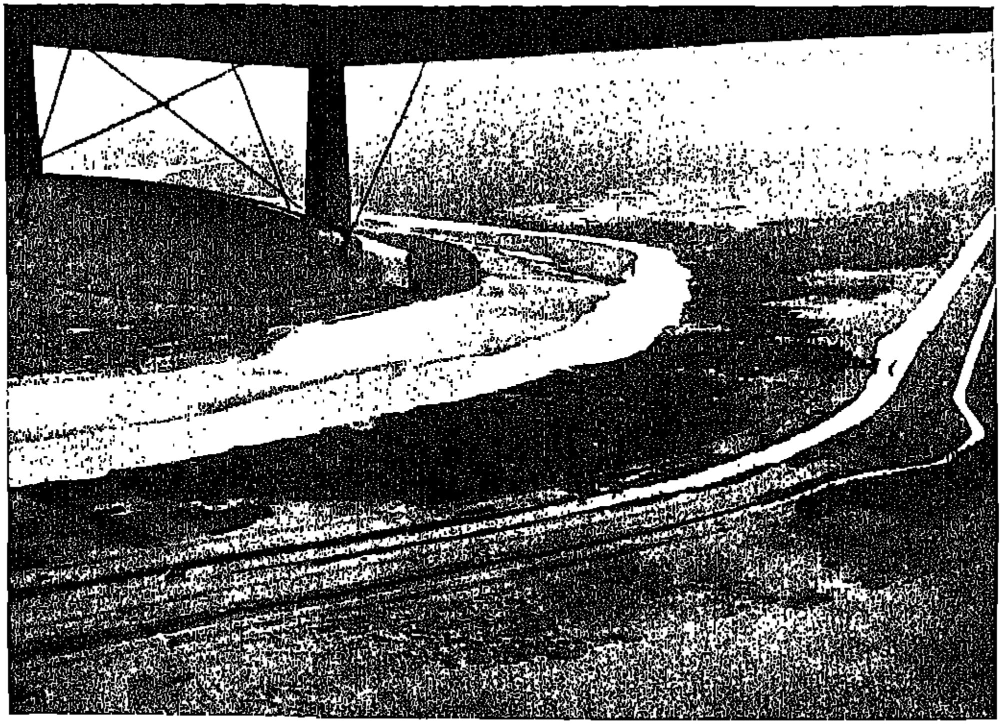
Together with the railways, complete through services in the territories are maintained by means of a well-organised service of steamers plying on the lakes and the river Nile. Roads too are of great importance and many miles of an all-weather type have been laid down, especially in Kenya and Uganda.

ANGLO-EGYPTIAN SUDAN

General considerations.—This vast territory of over a million square miles is ruled jointly by Britain and Egypt owing to the vital importance of the Nile to the latter country.

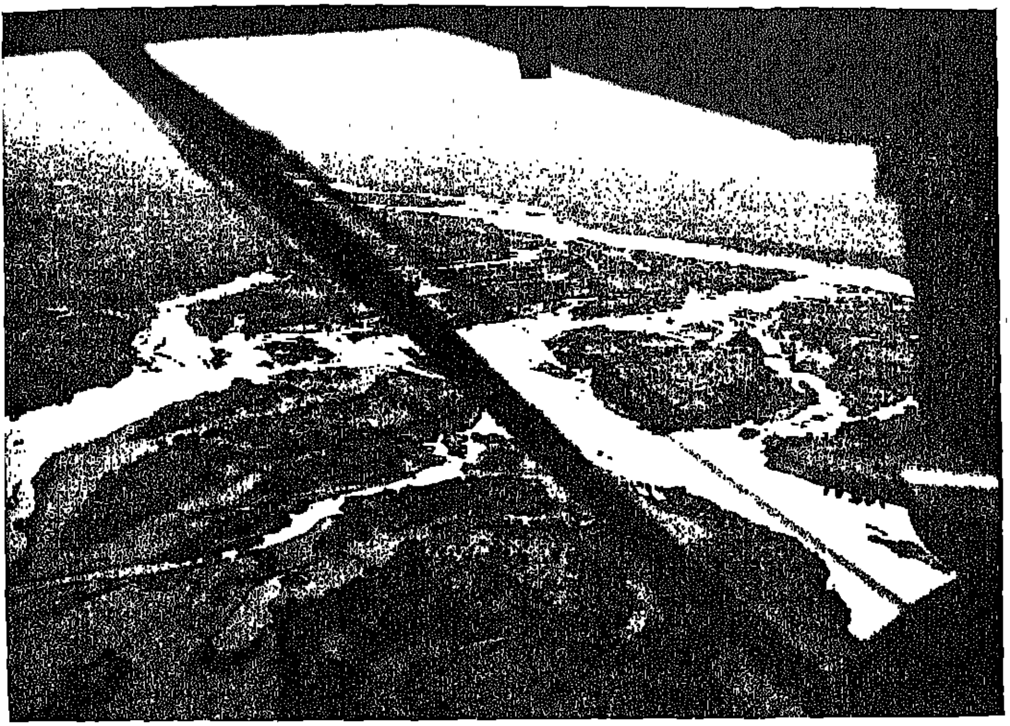
Only about a quarter of the area is cultivated as the northern half is desert or semi-desert and the southern is savannah. The native peoples, roughly six millions, are a mixture of Arabs, Negroes and Nubians, mostly of a nomadic, pastoral type.

Productions.—Cultivation is developing rapidly, either in the south where the summer rains ensure an excellent cotton crop or in the Gezirah plain between the Blue and the White Nile where extensive irrigation (Plate LX) has resulted in the production of large quantities of long-staple American cotton. Irrigation has been made possible by the construction of the great Sennar Dam and now over 10,000 miles of major and minor channels cover the country. Two other products of leading importance are *dhurra* millet, the chief food crop, and gum arabic. The Sudan is the source of the world's greatest supply of the latter, which is col-



[*Reproduced by courtesy of Imperial Airways, Ltd.*

PLATE LX. THE NILE, SHOWING IRRIGATION CANALS



[*Reproduced by courtesy of American Colony Photographers, Jerusalem.*

PLATE LXI. THE NILE NORTH OF KHARTOUM

lected from the acacia trees of the scrubland and transported by camel to El-Obeid. Other crops include sesamum, senna, dates, chillies, ground nuts, maize and the lesser-known dom nuts (vegetable ivory) and shea (butter) nuts. Ivory is obtained from the large herds of elephants of the southern savannahs and gold, hides and trochus shell are also exported.

Routes and towns.—The chief town of the Sudan is *Khartoum* (pop. 46,986). A well-planned modern city, it is the administrative centre and is connected by rail with El-Obeid, Wadi Halfa and Port Sudan on the Red Sea.

Omdurman on the opposite side of the Nile to Khartoum really forms the "native quarter" of that town and has a population of nearly 113 thousands.

Large sections of the Nile are blocked to traffic by the "Sudd," composed of an inexhaustible quantity of papyrus, but services of shallow draught steamers navigate various reaches and tributaries and communication is continued to the Kenya and Uganda railway system by various motor services.

BRITISH TERRITORIES IN ASIA

South East Asia, the first of the regions to come under consideration, is an area of young fold mountains. One line of folding runs through the Malay peninsula and is continued in a chain of islands which include Sumatra, Java and the Moluccas. Another which runs from New Guinea north-westwards is marked by a further series of islands which includes the Philippines. Between the two lies Borneo, a mass of older rock. The presence of these new fold ranges results in the region being one of the most unstable parts of the earth's surface.

Peoples vary through the area since intercourse between the islands has been made easy, but the most prominent races are the Malays and Papuans.

In the Malay peninsula the British sphere of influence comprises three divisions: (1) The independent native states; (2) the Federated Malay States under British protection, and (3) the Straits Settlements of Penang, Malacca and Singapore.

Federated Malay States consists of a number of native states occupying the south-eastern portion of the peninsula, whose rulers are advised by British representatives.

Agriculture and mining are of equal importance to the population among whom is a large number of Chinese. The main cultivated products are rubber, coconuts, rice, palm oil and pineapples, the minerals being tin (over half the world's supply) and gold. Lesser crops are cassava, tuba root (derris), areca nuts and tobacco. Gutta percha is obtained from the forests.

The Straits Settlements is a Crown Colony made up of Singapore, Penang, Malacca and lesser islands. *Singapore*, on a large island, has a very commanding position and has developed a large *entrepôt* trade. It is also a naval and air base and coaling station, and carries on most of the trade of both the Settlements and the Federated Malay States.

Labuan is a market and port for the neighbouring coasts of Borneo, and produces sago.

British Borneo is divided into British North Borneo, which is under the control of the British North Borneo Company; Brunei, which is a native state under British protection, and Sarawak.

Sarawak, the most important, has a large oilfield and considerable deposits of coal. Most of the trade of the island is carried on through Singapore and Hong-Kong with Great Britain and the colonies. The exports show an extreme variety and include, besides products similar to those of Malaya, spice (nutmegs, cinnamon, pepper), camphor, birds' nests, beche-de-mer, and rattans. The forests constitute the most valuable natural resource of the country, which is showing great development.

Palestine and Trans-Jordania, the second area in Asia, are two British mandates in the near east. The region falls into four well-defined natural divisions parallel to the coast:

1. *The coastal plain.*—From the northern boundary down to Jaffa this is fertile and well watered and produces citrus fruits, grapes, melons and tomatoes. South of Jaffa is the plain of Philistia which is a temperate grassland and produces oranges, olives and honey.
2. *The central uplands* are formed of limestone and are cut into deep wadis. Sheep and goats find pasture although the slopes are often terraced for the cultivation of vines and olives.
3. *The rift valley* is a dry area through which the Jordan flows from the sea of Galilee to the Dead Sea, which is 291 ft. below the level of the Mediterranean.
4. *The highlands* of Trans-Jordania are wild and rugged, and inhabited mainly by pastoral nomads although parts of the volcanic soil in the west are settled.

Palestine is essentially an agricultural country and besides the products mentioned, wheat, barley and pulses are considerable winter crops and maize, dhurra and sesamum, summer ones. Tobacco is widely grown in the Galilean hills and bananas in the Jordan valley.

The mineral wealth is not important though salt is common around the Dead Sea and there are also considerable quantities of sulphur, potash and bromides.

Towns and industries.

Jerusalem (pop. 90,503) is the capital of Palestine and stands on the uplands overlooking the Jordan valley. Communication to the coast, however, is difficult, but there is a connection by rail with Jaffa.

Haifa (pop. 99,000), the chief port, is connected by rail to Egypt and to Damascus and is a terminus of the pipe line from the oilfields of Mosal.

Manufacturing is developing rapidly under Jewish leadership at Haifa and Tel Aviv, the main industries being concerned with flour milling, soap making, cement, tobacco and chemicals.

Strategically Palestine has always been important. It lies along the ancient highway between the once great empire of Egypt and Mesopotamia, and the presence of a strong government is essential. Britain's task under the mandate is no easy one since Moslems form the majority of the population, and on religious, political and economic grounds resist the Jewish colonisation proposed under the terms of the mandate.

BRITISH TERRITORIES IN AMERICA

British territories in the New World are mainly confined to certain widely dispersed islands in the West Indies which form the unsubmerged portion of a mountain range.

Attempts have been made to unite the group as a whole but great resistance has been encountered since the eight colonial groups refuse to give up their autonomous rights to a central authority.

Jamaica, the largest island under British rule, was captured from Spain in 1655 and for many years was a great buccaneering and slave centre. Over 75 per cent of the inhabitants are negroes, 20 per cent are coloured people, whilst the remainder are East Indians and whites.

Agriculture is the staple occupation of the people, and the chief commercial crop is bananas. Sugar cane, from which rum is manufactured, is the next most important crop, whilst coffee, cigars, pimento, cocoa, coconuts, ginger and logwood are also exported.

Kingston, the capital, conducts most of the trade of the island.

Barbadoes has a rich volcanic soil and produces sugar cane and cotton, whilst **Trinidad** situated off the coast of Venezuela is noted for its pitch lake from which most of the world's natural asphalt is obtained. The "lake" is about 200 ft. deep and covers an area of approximately 100 acres. The pitch is dug out in blocks and transported to the coast on railways running across the surface. Petroleum is another important product of Trinidad and the island is the Empire's chief source of oil.

The chief cultivated crops are cocoa, sugar, coconuts, coffee, grapefruit and limes. Port of Spain is the capital and chief port.

Other islands belonging to Britain include the Bahamas, Antigua, Dominica and Montserrat, and their chief products are cotton, sugar and tropical fruits.

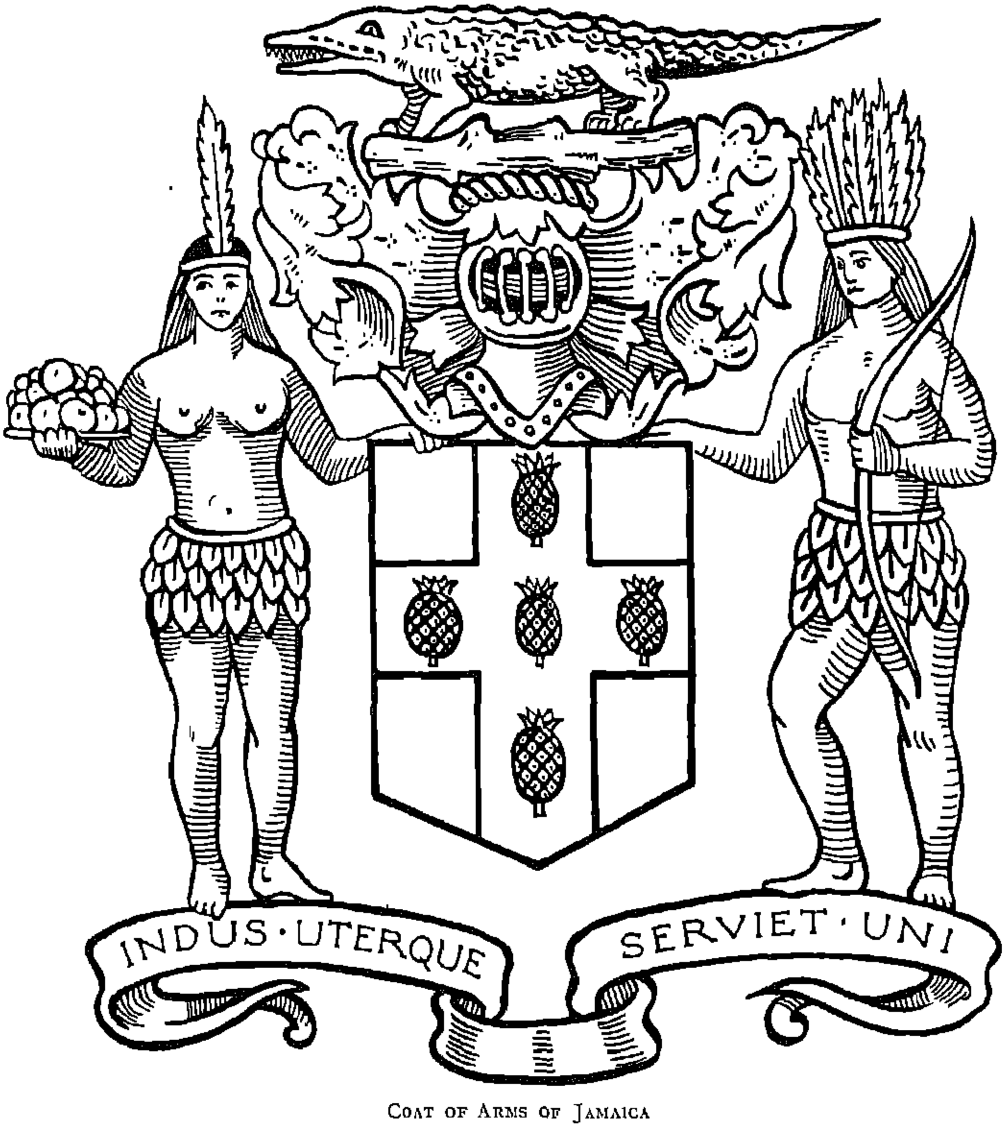
British Guiana is the only British colony in South America, and is comparatively undeveloped. There are about 15,000 whites and 7,000 aboriginal Indians in a total population of 300,000.

Sugar cane is the chief commercial crop and is cultivated along the hot wet coastal plains with East Indian coolies forming the bulk of the labour supply. Other products are rice, coconuts, timber and balata.

British Guiana is rich in gold; diamonds are mined also and there are huge deposits of bauxite (aluminium ore).

Georgetown, at the mouth of the Demerara river, is the main town and many communications by rail, motor road and river lead to the centres of activity.

British Honduras is a sparsely populated colony notable for export of mahogany, logwood and chicle, from which chewing gum is made. Most of the land is heavily forested but crops such as plantains, citrus fruits, sugar cane, pineapples and rice grow readily.



Coat of Arms of Jamaica

The capital is *Belize*, situated on the coastal plain where most of the inhabitants live.

The Falkland Islands are a British Crown Colony, and lie on the continental shelf of South America about 300 miles to the east of the Straits of Magellan.

They experience a very harsh climate, with violent cold winds and heavy rainfall. Whaling and sheep rearing are the chief occupations of the 3,000 inhabitants. Port Stanley is the chief harbour and is a coaling, watering and refitting station for ships.

OUTPOSTS OF EMPIRE

Besides the numerous small British territories scattered about the oceans, there are a number of military ports, coaling and trading stations which have an importance out of all proportion to their size. Most of these are on or near the sea and the chief are strung along the line of communication which stretches from Britain to her Eastern Empire and Australia.

Gibraltar, the first of these, a great fortified rock three miles long, three-quarters of a mile wide and a quarter of a mile high, has a commanding position for the control of the western entrance to the Mediterranean. It has developed not only as a naval base, but has an extensive transit trade and is becoming a popular tourist centre.

Malta is the next on the route commanding the straits between the eastern and western parts of the Mediterranean. The strategic value of this position is well shown by the fact that it has been held in turn by Phoenicians, Greeks, Carthaginians, Romans, Arabs, Crusaders, French and British. The three islands are very fertile and produce typical Mediterranean crops as well as early fruits and vegetables for the English market. Valetta, the capital, has one of the finest harbours in the world and has an extensive dockyard and arsenal for the Mediterranean fleet.

Cyprus is another British island in the Mediterranean. Water supply is a problem here, and the winter rainfall is stored in tanks. Many products are exported: Mediterranean fruits, tobacco, wine, carobs and cumin seed, and minerals include copper and iron ores, gypsum and asbestos.

The Suez Canal, so important to Britain as a link with her eastern dominions, lies in Egyptian territory. It is owned by the Suez Canal Company in which most of the shares are held by the British and French Governments. Its course lies through nearly 100 miles of desert, and it is open to the sea at both ends. Port Said is situated at the northern end and Suez at the southern. A swing bridge at El Kantara carries the railway from Egypt to Palestine across the Canal.

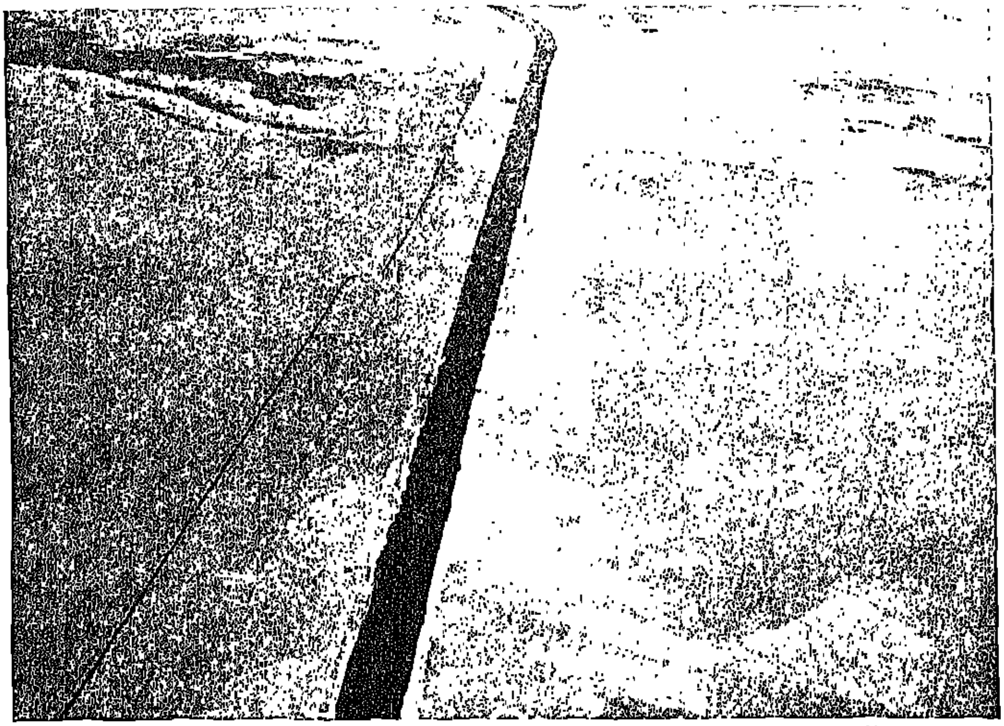
Aden has been British since 1839, and Britain has widespread influence along the southern coasts of Arabia, besides owning the islands of Perim and Sokotra which are further links in the route to India. Aden itself suffers an intensely dry and hot climate. There is no vegetation and all food has to be imported, whilst water is distilled from the sea. It has an excellent harbour mainly used for oil and coal bunkering, although coffee and other products from the districts along the south coast of Arabia are exported. Recently it has become an important air-force station. The territory of **British Somaliland** on the African coast overlooks the Gulf of Aden and its chief port, Berbera, though of strategic importance, is unimportant economically since the arid hinterland is inhabited only by nomadic pastoralists.

The Bahrain Islands form a useful base for the Persian Gulf area. Their most important economic activity is pearl fishing.

Hong Kong is the next station after Colombo and Singapore dealt with already. This Crown colony is a mountainous island situated off the mouth of the Si-Kiang and controls a vast *entrepôt* trade. Besides its importance as a naval base and coaling station it has many industries including sugar refining, tobacco and shipbuilding.

The Pacific Islands.—The numerous British possessions in the Pacific have a hot equable climate and produce tropical crops such as coconuts, yams, bread fruit, bananas, sugar, rice, coffee and tobacco. Copra used in the manufacture of soap and oil is the main export. Nauru, now a British Mandate, is reputed to have valuable phosphate deposits.

Memory work.—1. By the Colonial Empire is meant all those parts of the British



[*Reproduced by courtesy of H. Shepstone, Esq.*

PLATE LXII. THE SUEZ CANAL

Commonwealth that come under the direct care of the Mother Country.

2. Each one is important, either as a means of supplying special foodstuffs and minerals for the benefit of the others or by acting as a means of defence along the great shipping routes leading from Great Britain to the far east.

3. The mandated territories do not really belong to the Empire; England has been requested by a committee of European countries to look after them, for the time being, so that no harm comes to the native peoples living there.

4. The largest Empire territories are: in West Africa, *Nigeria*; in East Africa, *Kenya*; in Asia, *Malaya*; in America, *British Guiana*.

5. Nearly all the territories are within the tropics. This means that plantations must be worked by natives, white men acting as superintendents. In East Africa especially, natives own their own plantations.

6. A great variety of products come from tropical lands, but six special ones to remember are: cane sugar, coconuts, cacao, bananas, spices and rubber.

7. Two very important minerals to remember are *tin* from Malaya and *asphalt* from Trinidad.

8. The Suez Canal is the very important link between the Mediterranean Sea and the Red Sea. A special agreement has been made with Egypt so that it is properly defended.

Activities and exercises.—1. *Questions*:

(*a*) White people do not usually settle down as colonists in tropical lands. Write down three ways in which they get their living.

(*b*) Which natives of the Colonial Empire live in houses built on piles above water?

(*c*) Name two very important *entrepôts* in the Colonial Empire.

(*d*) Here are names of some curious tropical

Rere · Vaka · na · Kalou · ka · doka · no · Tui

Coat of Arms of Fiji

products. What are their uses? Pimento, cutch, ghee, piassaba, cassava, logwood.

(e) Which of the "outposts" is so dry that drinking water has to be distilled from sea water?

(f) Cane sugar has lost the great importance that it used to have. Why is this?

(g) Millions of pounds have been spent making great docks and defence works at Singapore. What is the reason for this?

2. *Mapwork.*—(a) It is almost impossible to remember details of all the Colonial Empire. A good method of working is to draw up a chart with these headings at the top: territory, latitude, altitude, rainfall, temperature, people, products. Put any region; e.g., Java under the first. Find out the particulars about Java from your maps for the next four and then write in the last two what you consider should be there. No figures are necessary at all.

(b) On a map of the world indicate boldly the eastern trade routes from London to

Hong-Kong. Mark in the British stations on the way.

3. *Diagram.*—Print bold lists, well spaced, of the leading products of tropical, monsoon, Mediterranean, and cool temperate climates. Against each product sketch a suitable illustration or attach a cutting.

4. *Handwork.*—(*a*) Draw plans or make models of an irrigation system, a swing railway bridge, or native sailing ships such as a dhow (Arab slave boat), catamaran (surf boat), dahabeeyah (Nile boat).

(*b*) Weave native mats, ships' sails, and houses in fibre and split cane.

5. *Write* a description of a journey from Mombasa to Khartoum; train, lake, motor and river services all come into use.

THIRD YEAR COURSE

1. ECONOMIC STUDIES

LESSON UNIT I—GENERAL CONSIDERATIONS

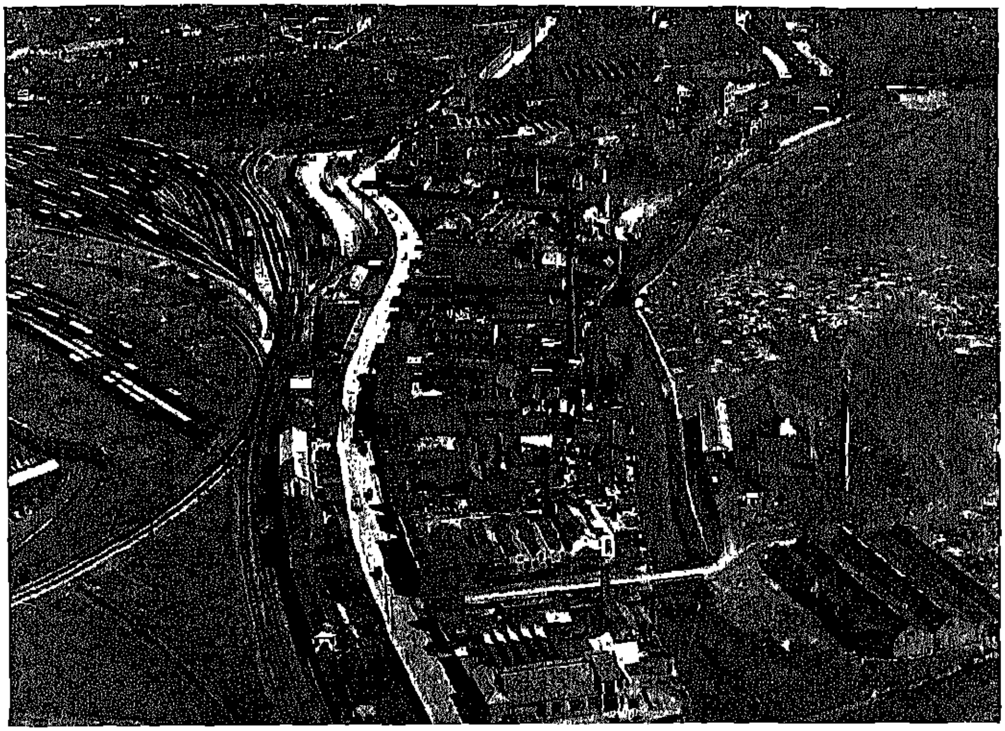
Introduction.—From the regional survey of the world it is apparent that no single region can supply abundantly all that man requires as he advances in civilisation. In the forthcoming economic studies the aim will be to show how the human being satisfies his needs in his efforts either to adapt himself to his environment or to regulate his environment to suit his own requirements. As an example of the latter, commerce will be seen as an effort to equalise the distribution of the world's commodities.

In a preliminary broad survey of the subject two main factors may be noted: the *geographical*, dealing with the distribution of land and water and the effects of climate; and the *human*, relating to man's ability to make use of the possibilities offered.

Distribution of land, raw materials and population.—Only two-sevenths of the world's surface consists of land and can therefore be considered the home of man. Of this, by far the greater proportion lies in the northern hemisphere and in such a manner that it affords a complete series of zones and resultant economic products. This is not all; the bulk of the land occupies temperate latitudes, a fact that has been of great importance in human development.

Thus, in the *equatorial regions*, the intense heat is not conducive to hard work. Plant life is abundant and generally speaking the natives have an ample food supply. They are content to live in primitive dwellings, and are, in many respects, little better than intelligent animals. The *tundra* regions on the other hand offer but the scantiest resources of food, clothing and occupation and furnish only a bare subsistence for the inhabitants. There is accordingly no margin for the accumulation of wealth or leisure for the improvement of the aesthetic side of life. In the *temperate* lands the conditions have created a more highly specialised style of living. The white man demands greater variety in his food; his home must be well furnished and comfortable and his higher needs must be supplied. As his immediate surroundings do not supply all his requirements, commerce and industry have arisen. Thus it is that world distribution of raw materials gives rise to exchange and transport and hence to the utilisation of power—water, steam and electricity.

Raw materials.—In this aspect of economic study the first factor to consider is where raw materials are found. Among simple



[Photo: Aerofilms, Ltd.

PLATE LXIII. FACTORY DISTRICT—CARPENTERS ROAD, STRATFORD, LONDON, E.

societies manufacturing is impossible excepting where raw material exists, but in more developed communities, where transport has been brought to great perfection, the absence of raw material, although increasing the cost, does not prevent manufacture. The next step is to trace the conditions necessary for the growth of the products of most importance to man, the means of obtaining them and the uses to which they are put.

Population—climatic influence.—Climate is by *far the most important factor* in the distribution and development of the human race. This is not entirely due to man's sensitiveness to heat or cold but to the sensitiveness of plants on which both animals and man depend. Each family of plants is very exacting in its demands. Rice needs swampy or flooded soil and flourishes in hot moist climates; cereals are sensitive to lack of moisture or heat, whilst the varied types of fruit demand their own climatic conditions. Thus each group of economic plants has a definite geographical range, a circumstance which influences not only the distribution of man but also the type of civilisation over given areas.

Man's needs.—The staple requirements of man are *food, clothing and shelter*. In parts of the world these needs are fulfilled in a very primitive way, in others, where more progressive races are to be found, these necessities are more elaborate, more specialised. In all regions alike, however, there is one essential commodity that is common to every man, and that is water. The necessity of its presence for the life of every community and the special conditions under which it is obtainable provide ample reasons for a brief survey of the subject at this point.

Water supply.—Throughout the world great variety exists in the means taken by man to supply his needs. Where life is simple, water is directed solely towards the maintenance of existence, but among the advanced communities it has become essential for a diversity of purposes. Thus, besides the ordinary domestic uses to which water is put, vast quantities are needed for hygienic precautions in towns and for industrial purposes. In a large textile manufacturing town, for example, where water is required for washing clothes or for generating steam power, the amount used per head of population is as much as 150 gallons a day.

Among the more backward regions of the world the supply is obtained merely by collecting the water from rivers or lakes in skin bags or eathenware jars, and in other parts open wells are the sole sources of supply. It is known that in all parts of the world the ground is saturated with water below a certain depth. The depth, which is known as the water table, varies, so to be a satisfactory source of supply a well must be deeper than the lowest level of the water table. Various methods are used for raising the water from wells, the primitive forms varying from the rope and bucket to the shadoof, sakia (horizontal wheel) and Archimedian screw still being in frequent use. Pumps of various types are used in more advanced communities, and the water raised is stored in tanks or reservoirs.

The artesian well is a special type of well which is formed by water penetrating to a porous layer of rock sandwiched between two impervious layers. The London basin is a good example of this. Rain which falls on the chalk hills to the north and south of the Thames sinks through to the bottom of the basin below London where it is imprisoned by the layers of clay above and below the chalk. When wells are sunk through the clay to the chalk the water rises and, in cases where the collecting porous layer is high above the level of the bottom of the basin, it will gush out. Artesian wells are of special importance to stock rearing in a dry region such as the Great Artesian basin of Australia. Many desert oases are supported by natural artesian wells and in the Sahara the French have tapped water which comes from rain that has fallen hundreds of miles away.

The complicated systems required for large cities involve mains, sewers, and minor pipes to each house. The sources of supply include rivers, lakes and reservoirs, with wells as supplementary means. Great care has to be taken that the water is pure and clear and filtration and chemical treatment are necessary to rid the water of bacteria and any other unpleasant matter. Where reservoirs are constructed, although the initial cost is very great, subsequent maintenance is inexpensive as protection is given from contamination. In such an instance the reservoir would probably be situated at a higher level than the town so that the water will flow by gravity, thus saving pumping costs. In England, Manchester obtains its water supply from Thirlmere and Haweswater in the Lake District and this is to be supplemented by a big reservoir to be formed by the flooding of the Mardale Valley. Glasgow obtains its water from Loch Katrine and Liverpool from Lake Vyrnwy, whilst many of the towns in northern England draw their supplies from reservoirs in the Pennines.

There are certain very dry parts of the world where the water table is so deep that it is virtually impossible to obtain a supply from the ground, and in such parts the water has to be imported. Kalgoorlie and Coolgardie in Western Australia and certain mining settlements in the Atacama desert obtain their water by pipe line, whilst at Aden a considerable proportion of the supply is obtained by the distillation of sea water.

Irrigation.—The importance of irrigation has already been alluded to in the section on *Hot Deserts* in the first-year course. There the civilising effect of irrigation and its bringing together of dense masses of people were pointed out. In such communities regular work is essential and laws regulating supply, from which systems of government can develop, have to be enforced. If these conditions are complied with, the return for a moderate amount of labour is very great. Soluble plant foods remain in the soil since there is no rain to carry them away, whilst the irrigation channels often bring down deposits of fertile silt and so constantly enrich the soil. The supply of water can be regulated and there is no danger of crops such as hay or grain being ruined by heavy rain, whilst the growth of plants is seldom checked by cloudy weather.

Teaching aids.—As the student attitude is far more strongly developed in children of the third year, exercises will be more in the form of hints for individual study rather than a means of supplying further information directly. Summaries are always useful but even with older children often take far too long in compiling and contain much irrelevant matter. Consequently, many headings will be given as a guide, the children completing suitable notes or descriptive sentences. As in the first and second year a series of short questions with each lesson unit may be helpful in giving competitive reference work and in widening the field of study.

Summary headings.—1. Economic geography (definition). 2. Chief features for study (distribution of land, etc.). 3. Man's needs. 4. Water supply. 5. Needs of highly civilised peoples. 6. Needs of backward peoples. 7. Sources. 8. Primitive means of supply. 9. Modern methods. 10. Irrigation.

Questions.—(*a*) What are the two main needs of man to support life? (*b*) Why were the ancient peoples most thickly crowded along the great watercourses? (*c*) How can great numbers of white people obtain a living in small areas? (*d*) What is the main difference between the life in the crowded areas of white population and that in similar areas of monsoon or irrigated regions? (*e*) Account for this difference. (*f*) What and where is the source of your own water supply? (*g*) What are filter beds made of? (*h*) What chemicals dispose of harmful bacteria in water? (*i*) Why is it that water can flow upwards through the pipes in your house?

Visits.—(*a*) To the filtration plant at the local waterworks. (*b*) To a river before it enters a town and after it passes a factory.

Working models.—Shadoof, sakia, hand and wind pumps.

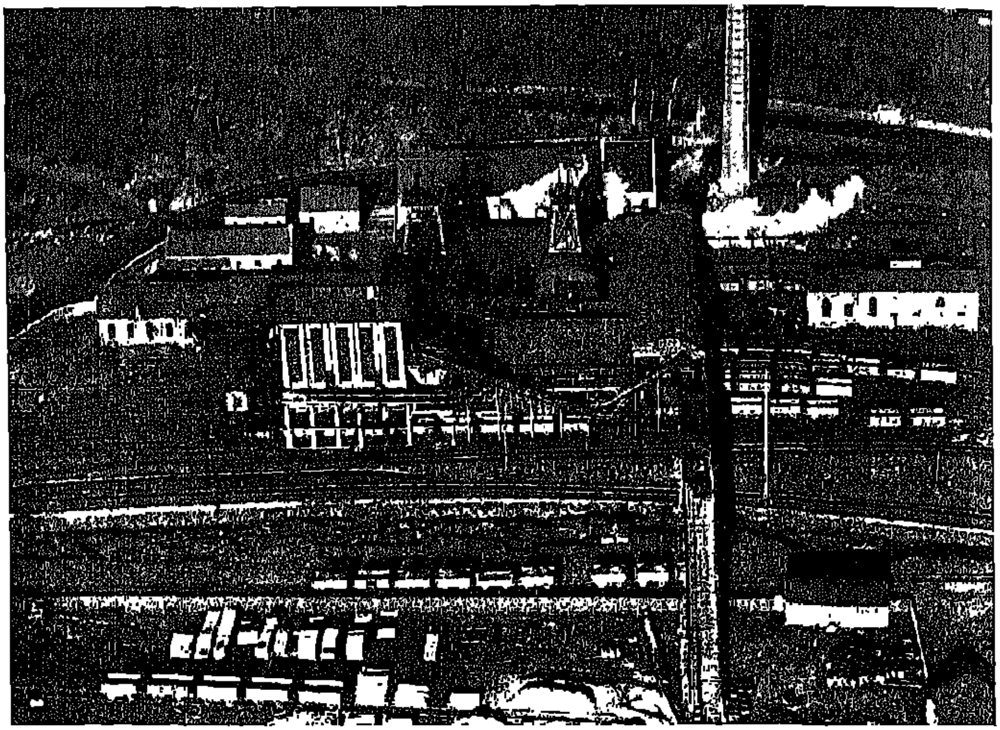
Diagram.—Statistics of land under irrigation, figures in million acres. India 50; U.S.A. 20; U.S.S.R. 8; Japan 7; Egypt 6; Australia 1; Iraq 1·5; Argentina 2; Mexico 5·7; Italy 4·5.

Written work.—Write an article on *How water supplies are purified*, or *Ancient and modern methods of irrigation.*

LESSON UNIT II—SOURCES OF POWER

Introduction.—Power, used in the engineer's sense as energy available to the human being for driving machinery, is a subject of considerable importance in any economic studies. Civilisation began when man first learnt to supplement his own strength by enlisting the services of domestic animals and in modern times power as the basis of all industrial development is one of the outstanding topics upon which human thought is centred. One or two lesson units can be spent profitably in considering the sources of power and can be very interesting when dealt with either in lecture form by particular children who are mechanically minded, or informally as a class chat. When it is considered that the total cost of working a modern Diesel engine plant is considerably less than $\frac{1}{800}$ of the cost of man power, some knowledge of what power involves becomes a matter of no mean importance to the modern child.

Five great sources.—Among primitive peoples man's strength is still his greatest aid but in more advanced communities its



[*Photo: Aerofilms, Ltd.*

PLATE LXIV. COLLIERY PITHEAD, CULROSE, SCOTLAND

value is infinitesimal compared with the five great sources: animals, wind, water, coal and oil.

1. *Animals* still play a very large rôle in agriculture despite the increasing number of motor vehicles. In most tropical countries, however, little use is made of animals since horses and oxen do not thrive because of the climate and insect pests.

2. *Wind* has been harnessed for very many years mainly by means of the sails of ships and of windmills, but these have declined in importance with the development of steam and electricity. The obvious defects are the irregularity of winds and the absence of any device which will store wind power so that the supply can be used during periods of calm.

3. *Water power.* — Two conditions are necessary for the favourable development of water power: a regular flow at all times and a rapid descent. These conditions are best fulfilled in regions of rugged relief where streams are rapid and the rainfall is abundant. Irregular flow is overcome in some parts by the construction of dams which supply water for power and irrigation during the dry season. The Boulder Dam on the Colorado River in North America is a good example. In other parts where lakes form part of the course of a river they generally obviate the necessity of dams since they regulate the volume of the flow quite satisfactorily from season to season. Glaciated regions are particularly notable as sources of water power. Devices such as hydraulic cranes, jacks, lock-gate machinery and so forth, utilising the pressure of water, are largely employed but the old form of motor power as seen in the water wheel has to-day

been superseded by the turbine and reciprocating engine. Electricity has come in to transmit the power created to great distances, and with the rapid development of hydro-electricity works, supplies are now distributed to districts far remote from the actual sources.

By far the greatest water power site in the world is the Niagara Falls. All the advantages of a large river, a great fall, a regular rainfall and regulating lakes are present, whilst the Falls are situated in a region of dense population where transport is easy. Both New York State and Ontario take an enormous amount of electricity from Niagara. Quebec is supplied by the numerous rivers which flow south into the St. Lawrence through a heavily glaciated region.

In proportion to their size New Zealand and Norway have tremendous reserves of hydro-electric power. Already the latter country develops more such power per head of population than any other country in the world.

Of the European countries, Italy takes first place as regards the actual amount of power developed, with France second.

Other countries notable in this respect are Japan, Sweden, Switzerland and Eire, whilst in Russia dams have been built across great slow-flowing rivers in order to obtain a supply. One point showing the ease with which hydro-electricity is transported is its export as a commodity by Austria and Switzerland to neighbouring regions, especially Germany.

4. *Coal.*—At present coal is the most important source of power to most advanced nations and it is fortunate that the largest supplies are situated in those parts of the world where the people are active and progressive.

Ages ago such areas were probably swamps covered with rich vegetation which died and rotted. After a long period the swamps were submerged beneath a shallow sea in which mud was laid down. This gradually built itself up until other swamps were formed on the sites of previous ones. The cycle perhaps repeated itself several times, causing alternate layers of decayed vegetation and mud to be formed. Other sediments formed on top of these layers which became hardened under the pressure, the vegetation turning into coal and the mud into shale.

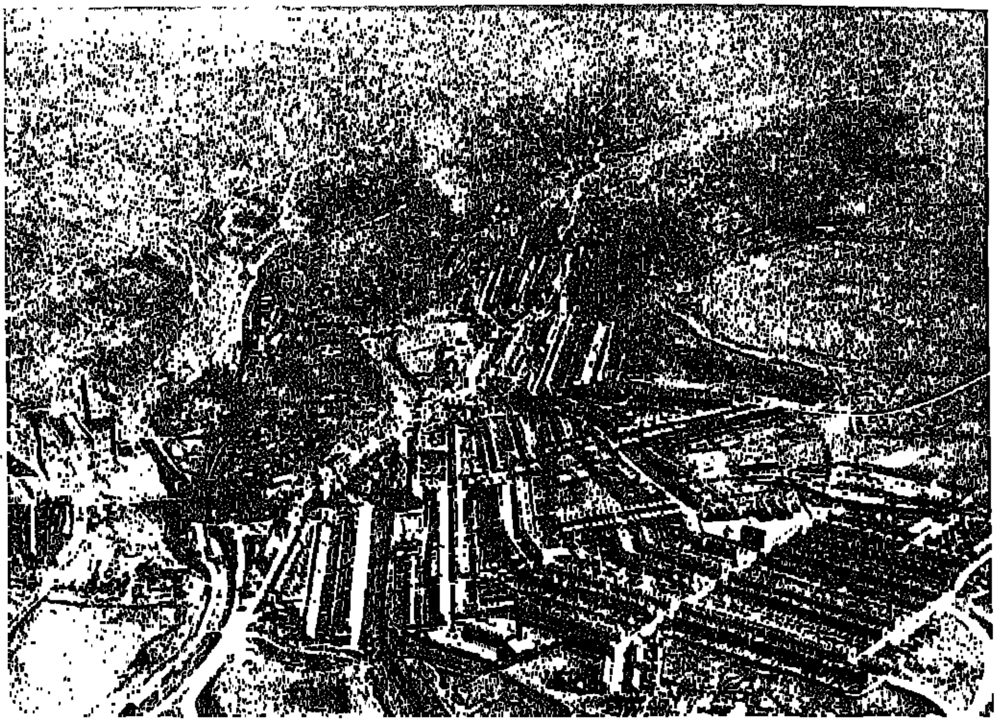
The United States is the greatest coal-producing country in the world, followed by Great Britain, Germany and France. In proportion to population, Great Britain leads, as she produces approximately 6 tons per person; the United States come next with 5 tons, Belgium next with 3, then Germany with 2 and France with 1½. In all these countries manufacturing is of great importance.

China has enormous reserves which are as yet largely unexploited, since that country has yet to become industrialised. Other large reserves lie undeveloped in Canada and Russia (Siberia).

Coal can be classified under four main types:—(*a*) Anthracite, a hard, bright coal containing a high proportion of carbon and very little gas. (*b*) Bituminous coal which includes ordinary household, cooking and steam coals. (*c*) Cannel coal containing a large amount of volatile matter. (*d*) Lignite which is really "half-formed" coal with a distinct woody structure containing a great amount of moisture.

At present coal is being consumed at the tremendous rate of nearly two billion tons a year. In many of the processes for which it is used there is an enormous waste of power. For example, only 15 per cent of the possible energy is transformed into power when coal is burned in a steam engine. This waste is being minimised, however, by converting the power into electricity or gas near the place of production.

The by-products of coal are extremely important and include coal gas (a source of light and heat), coke, ammonia and tar. From the ash remaining after combustion and from the tar a great variety of chemicals is recovered, the best-known being benzene, for dyes; benzole, for varnish and spirit;



[*Photo: Aerofilms, Ltd.*

PLATE LXV. EBBW VALE

Manufacturing centre connected with coalfield

toluene, for explosives, dyes and perfumes; naphtha; carbolic acid; creosote; sulphuric acid; pitch; ammonium sulphate, for fertilisers and heavy oils for Diesel engines and analine dyes.

5. *Oil.*—Mineral oil or petroleum did not become of importance as a source of power until the beginning of this century. It is always found in sedimentary rocks at a depth from 2,000 to 7,000 ft., and appears to have been formed by the decomposition of organic matter in the sediments. It is more easily obtainable than coal, as oil wells can be drilled, the oil rushing up and spouting out or being pumped to the surface.

Another great advantage of oil is that it can be transported over great distances by pipe line, and most of the great refineries are now situated at ports to which the oil is pumped. Sometimes the oil flows direct into the holds of "tankers," as at Haifa, to which port it is pumped from the oilfields of Iraq.

The development of the internal combustion engine went hand in hand with that of petroleum and the expansion of the motor vehicle and aeroplane industry is one of the outstanding features of modern times.

In addition to the enormous amount of petrol used for motor cars, there is an increasing demand for oil-burning ships. Many liners and battleships use oil fuel since it takes up less space than coal and also permits of a reduction in the size of the crew; but the extra expense and difficulties of storage have limited its use to such vessels, and ordinary cargo steamers still use coal.

Other important products from petroleum, besides petrol, include lubricating oils, paraffin oil, paraffin wax, benzine and vaseline. Natural gas often occurs with petroleum and provides an extremely cheap means of lighting and heating since it can be transported cheaply by pipe line over great distances.

Statistics.—The following figures represent the chief world productions of coal and petroleum for 1936, in million tons:

	Coal		Petroleum
U.S.A.	430	U.S.A.	149·6
Gt. Britain	230	U.S.S.R.	27
Germany { coal lignite	143 172	Venezuela	22·8
U.S.S.R.	120	Rumania	8·7
France	46	Iran	8·3
Japan	41	Netherlands (Indies)	6·4
China	33	Mexico	6·1
Poland	30	Iraq	4·0
Belgium	28	Bahrain Is.	·5

Teaching aids.

Summary.—1. Power, definition. 2. The sources of power. 3. The three sources of modern importance. 4. Requirements for water power. 5. Hydro-electricity. 6. Power derived from coal. 7. Chief industrial countries utilising coal. 8. Power used from petroleum. 9. Chief centres of oilfields.

Questions.—(*a*) Write down six ways in which you make use of any form of power other than muscular strength. (*b*) Where is animal power of more importance than that of machinery? (*c*) In what part of the world is wind power of very great service? (Use in shipping is not included in this question.) (*d*) Why did the water wheel become out of date? (*e*) What type of power produces your local supply of electricity; water, coal or oil? (*f*) How is it that so many factories have grown up around London in recent years? (*g*) What sort of coal is used at the local gasworks? (*h*) How is the power produced by the petrol fed into a motor car engine?

Visits.—(*a*) Try to realise the importance of power by visiting whenever possible such places as the engine room of a steamship, a lock on a river, a generating station for electricity, a factory. Officials in charge are always ready to give you any information you would wish to know. (*b*) A school visit to the local gasworks can always be arranged and is of great interest.

Diagram.—In a blank map of the world show the coal and petroleum deposits by circles and squares in proportion to the statistics given.

Writing.—Write an essay with *Power* as the subject or prepare for a debate in the geography circle on "Does power in doing man's work create unemployment?"

Imaginative work.—In the past power has often been expressed by artists in the vigorous action of a horse or the beautifully developed muscles of an athlete. How would you in a picture, pencil or colour, show power as represented by modern invention?

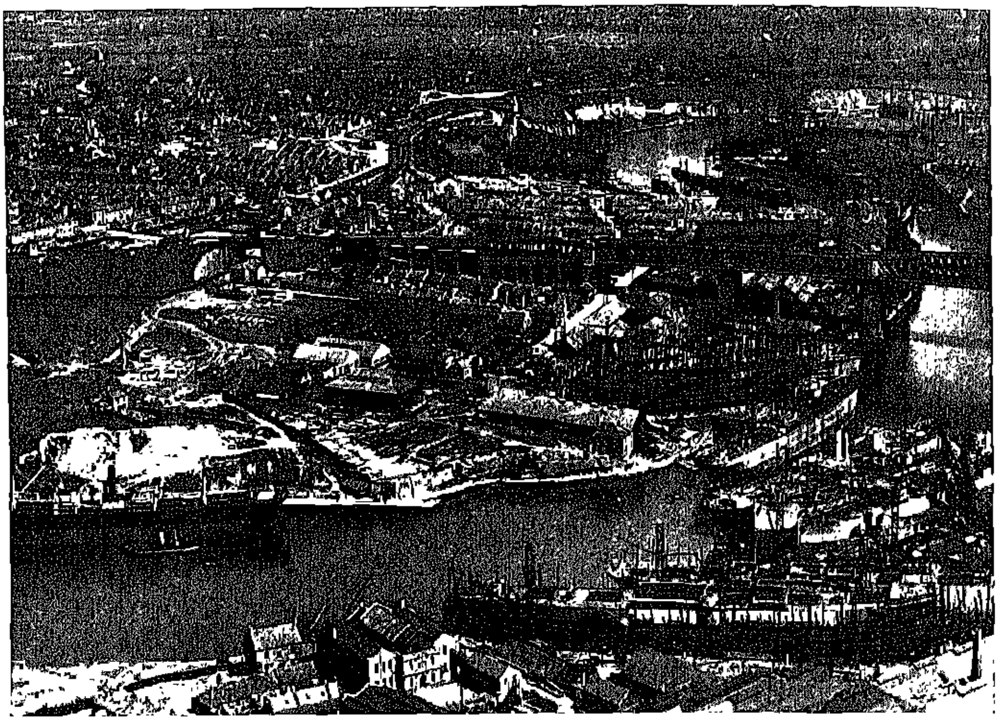
LESSON UNIT III—METALLIC MINERALS

Introduction.—The numerous minerals of which rocks are composed often include compounds of metals or ores in varying quantities and grades of purity. Demand for these, especially among the industrialised nations of this "Age of Machinery," has reached an extraordinary pitch and supplies form a matter of great concern among the world's commodities.

Among the metals, two only will be taken in any detail—iron, representing the great requirement of industry; and gold, occupying a similar position as a medium of exchange.

Iron.—This one occurs widespread in most of the countries of the world but is seldom workable on a large scale, owing to the heavy cost of transport, unless it is found near good coking coal and limestone, two essentials for extracting the metal. There are four main types of ore:

1. Oxides such as haematite and magnetite: these are very pure ores, contain about 70 per cent iron and generally occur in large masses in limestone or igneous districts.



[*Photo: Aerofilms, Ltd.*

PLATE LXVI. SHIPBUILDING ON THE WEAR, SUNDERLAND

2. Hydrated oxides, such as limonite: this type has a low iron content often below 30 per cent, and often occurs in thick beds near the surface of the ground.

3. Sulphides, such as iron pyrites.

4. Iron carbonate, an impure form, which is often mixed with clay or carbon, as in clay ironstone or blackband ironstone.

World sources.—The chief iron-producing country of the world is the U.S.A. with an output of about a third of the world total. A large proportion comes from the Lake Superior region where most of the ore is haematite and is cheap to obtain since it occurs near to the surface and can be dug out by steam shovels. The Lakes provide cheap transport to the Pittsburg-Cleveland coal centre where smelting takes place. One feature of the trade is the return of the boats laden with coke, thus enabling smelting to be carried on at each end of the Lakes.

Other regions for iron mining in the United States are around Birmingham in the State of Alabama, Wisconsin, New York State and Pennsylvania.

The next greatest iron-producing countries are Germany, U.S.S.R., Great Britain and France.

Germany's chief deposits occur in the Sieg valley and Upper Silesia, further requirements of ore being imported from Sweden, Spain and France. The Russian fields of the Donetz basin and the Tula are very important and at Magnitogorsk, southern Urals, a huge experimental iron plant has been established. Here, the ores are extremely valuable but coal has to be transported from Siberia, 1,500 miles away.

Great Britain's home supply comes mainly from the low-grade ores of the limestone escarpment which are worked in the Cleveland Hills and in Lincolnshire and Northamptonshire, and the high-grade haematite ores of north Lancashire and Cumberland. About one-third of her requirements have to be imported. The import consists chiefly of high-grade ores from Spain, Sweden and North Africa (Algeria).

Most of France's ore comes from the limestone plateau of Lorraine. It is of low grade and has a high phosphoric content, a factor which prevented its exploitation until the discovery of a special method of treatment. Spain has considerable deposits of iron ore along the north coast around Santander and Bilbao.

The two main areas of production in Sweden are around Gellivara in the north and Dannemora in the south. The quality is excellent and some of the hills round Gellivara are made up of almost pure magnetite.

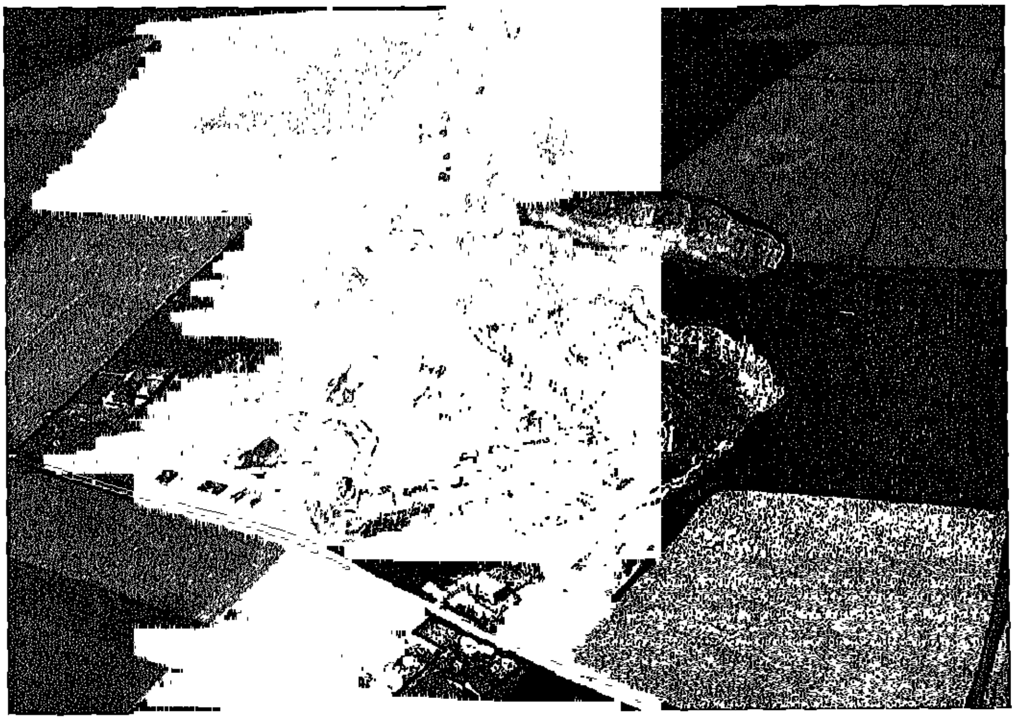
Other European areas of production are the extension of the Lorraine field into Luxembourg and southern Belgium, and the Bohemian field of Czechoslovakia.

Further countries where there is an appreciable production are Chile and Cuba, whilst development has begun upon the enormous reserves in China and India. It is estimated that these countries possess between them almost as much iron ore as North America, and they have the additional advantages of abundant coal, limestone and cheap labour.

Manufacture.—The chief processes in the manufacture of steel can be summarised as follows:

(*a*) Intensive heating of ore mixed with limestone (to combine with the silica and alumina impurities) in a *coke* blast furnace.

(*b*) Tapping the furnace, the resultant pig iron being run into sand troughs.



[*Photo: Aerofilms, Ltd.*

PLATE LXVII. IRONSTONE QUARRY, DURHAM

(*c*) Pig iron re-smelted and *puddled* to remove carbon impurities and produce malleable wrought iron.

(*d*) Small quantities of carbon or metals re-introduced to produce steels of various properties.

Notes.—Smelting is now frequently done by electrical processes, thus tending to bring the industry away from the coalfield.

Pig iron is sometimes run directly into moulds, the articles produced being known as cast-iron goods.

The chief metals introduced in steel making are manganese, chromium, tungsten, vanadium and nickel.

The type of goods produced on the various sites suitable for the iron and steel industry depends on local facilities, demand and, to a great extent, tradition. Transport too plays a great part, the availability of deep water for shipping affording the production of heavy goods whilst districts dependent upon the railway usually specialise in lighter articles.

Examples:

England	Middlesbrough, Darlington	Heavy girders
	Black Country	Screws, chains, electrical fittings
	Sheffield	Fine quality steels for bearings, cutlery, linings of guns
	Swansea	Tinplate (traditional)
U.S.A.	Prairie districts	Agricultural appliances, tin plate for canning and motor-body industries
Germany	Ruhr (Rhine district)	Heavy iron and steel
	Solingen	Cutlery
Belgium	Liege, Namur, Mons	Cheap articles (workers are partly farmers, wages low)

The particular machinery employed in textile industries is usually catered for by the foundries on the nearest coalfields. As for shipbuilding, owing to the dependence of the industry upon a suitable waterway, the source of iron and steel supplies is often far removed and accordingly, the great variety of articles required, from framework and turbine blades to luxury fittings, are obtained from different specialist localities.

Gold.—Notes upon mining and the effect of gold seeking upon the development of new lands have been made already in the courses of the previous years so little further reference to those aspects will be necessary.

Apart from its value for ornamental purposes, gold plays an important part in the financial system of the world. As a standard of commodity for use as a medium of exchange it is portable, durable, readily acceptable, divisible and uniform—qualities that are very necessary in metals used for money. It is an exceedingly stable metal and is generally found in its natural form, occurring as a rule either in reefs associated with igneous rocks or in alluvial deposits.

Extraction from the reefs necessitates expensive machinery, about an ounce to a ton of rock being the usual content, although some rocks from the well-known Witwatersrand have yielded 900 oz. to the ton. From the second form of deposits (placer), a precarious supply, extraction takes place by various forms of washing, Plate LXIX.

World production.—The main sources of world annual supplies, totalling about 35 million fine oz., may be seen best from the following statistics (the figures represent approximate millions):

Transvaal	11·3	Australia	1·2
U.S.S.R.	7·0	Southern Rhodesia	·8
U.S.A. & Phillipines	4·3	Mexico	·8
Canada	3·7	Japan	·7

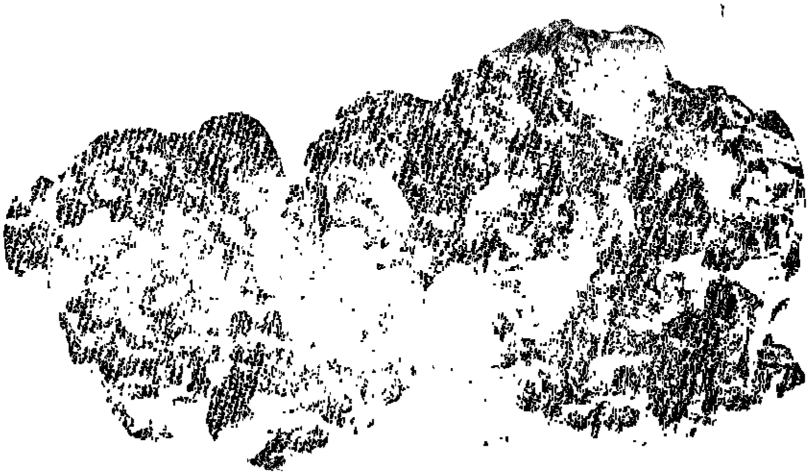


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PLATE LXVIII. "THE WELCOME" FOUND AT BALLARAT, JUNE 15, 1858, WEIGHING 2,217 OZ. 16 DWT.

This is the purest mass of native gold on record, being 99.2 per cent pure.

Other sources in order are Korea, Gold Coast, Colombia, Congo, India and New Guinea, the total for the British Empire amounting to 18·6 millions.

Other metals.—Every year the demands upon the resources of the base metals increase. New alloys are discovered, new uses are found and lofty mountain chains and desert depths, areas once considered inaccessible, are now penetrated freely in order to furnish the necessary supplies. It is interesting to note some of the uses of these metals:

Copper.—All types of electrical transmission work, brass and bronze articles, aircraft and motor cars. In ten years the demand has been more than doubled.

Zinc.—A metal in great demand for galvanising iron, used in paints and in making motor tyres.

Lead.—Pipes, paints, roofing material, solder, type, pewter ware and coverings for electric cables are some of the uses.

Aluminium.—An enormous jump has been made in the uses of this metal owing to its lightness and rustlessness. It occurs as bauxite and the pure metal is recovered by electrical treatment. This is usually carried on for cheapness, owing to the tremendous power needed, in a region of hydro-electric supply; e.g. Scotland, Norway, France, Italy.

Tin.—Tinplate is the chief material. It is in most demand in motor work and for all types of containers. With copper it forms bronze.

Nickel.—Alloys with copper, wireless valves, and admixtures in steels are notable uses. It occurs in various ores, is extremely hard and more tenacious than iron.

Platinum metals.—These, more valuable intrinsically, are widely employed in surgical and dental work, ornamental articles and fountain pens.

Statistics of production (in 1,000 tons).

Copper (restricted)		*Lead*		*Zinc*	
U.S.A.	600	U.S.A.	350	U.S.A.	440
Chile	240	Australia	200	Belgium	200
Canada	170	Mexico	200	Canada	138
N. Rhodesia	145	Canada	165	Germany	135
Belgian Congo	95	Germany	140	Poland	93

Tin (restricted)		*Aluminium* (restricted)	
Brit. Malaya	86	U.S.A.	100
U. Kingdom	35	Germany	95
Netherlands	21	U.S.S.R.	30
E. Indies	13	Canada	27
China	11	France	26
		U. Kingdom	20

Nickel (restricted)		*Platinum, etc.* (1,000 oz. Troy)	
Canada	75	Canada	230
New Caledonia	6·3	U.S.S.R.	170
		Colombia	38
		U. S. Africa	26

Teaching aids.

Summary.—1. Ores (definition). 2. The most useful ore. 3. The necessary factors for successful production. 4. Processes in producing steel from ore. 5. Factors governing manufacture of types of iron goods. 6. Three leading sources of supply. 7. Usefulness of gold. 8. The two types of deposit. 9. The most important world source.

Questions.—(*a*) What is the opposite to the term "industrialised nations?" (*b*) Why is a blast furnace so called? (*c*) Why is coke preferred to coal in a furnace? (*d*) If electric power is taking the place of ordinary firing, how is the current obtained? (*e*) How did tinplate come to be made at Swansea? Does the reason hold good to-day? (*f*) Why is the tinplate industry of particular importance in the U.S.A.? (*g*) How has the use of such metals as chromium and nickel with steel affected you to-day? (*h*) Why is copper so important to the electrical industry? (*i*) Silver has not been mentioned in this lesson. What is its value in the world other than for making ornamental goods? (*j*) Some countries do not permit the production *of all* the metals that they are able to. Why is this?

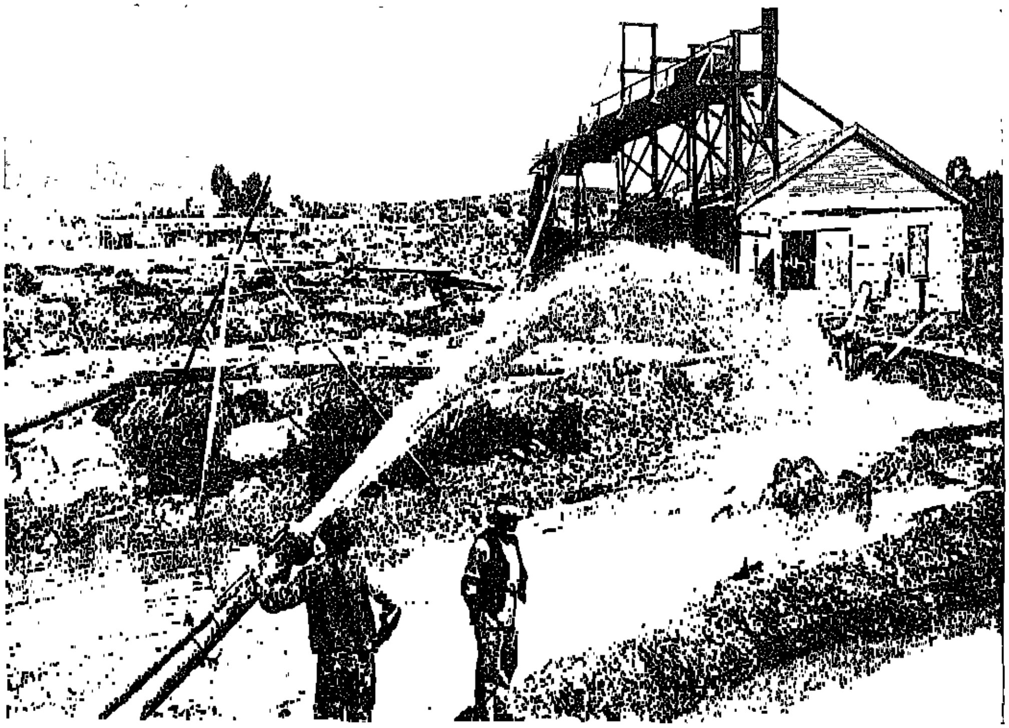

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PLATE LXIX. SLUICING FOR GOLD IN VICTORIA

Statistics chart.—A very useful series of diagrams mounted as a chart could be made up to indicate the sources of the world's metals. Further statistics are as follows:

Pig Iron (million tons)		*Steel* (million tons)		*Silver* (million oz.)	
U.S.A.	31	U.S.A.	48	Mexico	77
Germany	15	Germany	19	U.S.A. inc. Philippines	62
U.S.S.R.	14	U.S.S.R.	16	Peru & Bolivia	31
U. Kingdom	7·8	U. Kingdom	11·7	Canada	18·7
France	6·2	France	6·6	Europe	18
		Japan	5	Australia & New Zealand	13·5
				Japan & Korea	10·7
				British India	6

Visits.—There is only one way to obtain real knowledge of the world and that is by personal experience. No description can impress you nearly so much as a visit to an iron foundry, a mining area or to a motor works where mass production is in progress. If you are able to go to any of these an application made to the works' manager is seldom rejected. But do go when possible; don't become one of those people who pass down a particular street every day as they go to work and do not know even its name.

Geography circle.—Here is a knotty point to unravel in the geography circle:

(*a*) There are many places in the world waiting for railways, steel-frames for buildings, machinery, and all types of iron and steel goods. Months go by and nothing appears, yet large numbers of iron-workers are unemployed. Why is this?

(*b*) Draw up a list of English towns where the building of either a battleship or a great liner means a great deal to the unemployment question. Show the special products involved.

LESSON UNIT IV—FOOD SUPPLIES (1)

Introduction.—This lesson unit deals with the main products of temperate regions that are of world importance, and includes wheat, meat, dairy produce and fish. As much descriptive matter has been provided already in previous studies, the notes will conform mostly to the requirements indicated in Lesson Unit I.

Wheat.—Wheat, the outstanding crop of temperate regions, is probably the most adaptable of the cereals. At one time limited in the area of its production, the continued discovery of new varieties has widened its bounds from 30° N. latitude to as far as 60° N.

The best conditions for growth can be summarised as follows:

1. Well-drained clay or heavy loam soils to support the heavy crop.

2. Moderately level land to facilitate ploughing and reaping.

3. A cool and moist period during the early stages (temperature about 55° F.).

4. Warm and sunny weather for ripening.

5. An annual rainfall of between 15 and 35 in.

6. A total period available for growth of at least ninety days.

The wheat-growing regions of the world may be separated into two divisions:

(1) Those that do not experience very severe winters, such as north-west Europe, the Argentine and Australia, where the wheat is sown in autumn.

(2) Those where the wheat is sown in spring and reaped in late summer. In such areas the ground is frozen in winter, and it is impossible to sow until the spring thaw. Special rapid-growing varieties occur in such areas which include Canada, parts of the United States and Russia.

Two interesting points arising out of the cultivation in these regions are: Cool, humid areas produce soft wheats with a flour of poor digestive quality whilst in warm lands the grain is hard and the flour strong and white; the ground must be kept well fertilised to produce a satisfactory yield.

World resources.—The U.S.S.R., the U.S.A. and China are the three greatest producers, whilst Canada is by far the world's largest exporter. The great, undulating prairies of North America provide almost ideal conditions for wheat cultivation and the region is well served by railways and a series of great elevators for the distribution and storage of the crops.

Other areas of production in North America are California, the Eastern States and the Rocky Mountain plateaux.

In Asia the chief areas of production are Northern China, Manchukuo and the Punjab and United Provinces of India. Most of the production from the former region is consumed locally but India has a small surplus for export.

Europe is the greatest consumer of wheat, taking over 50 per cent of the world's output. Nevertheless it supplies a great deal of this itself as it produces between 30 and 40 per cent of the world's output. It is grown in the drier and sunnier parts of those countries in the north-west European belt, but flourishes best in the Mediterranean lands and in those countries with a climate

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PLATE LXX. HARVEST IN SASKATCHEWAN

approaching the continental type, such as Hungary, Rumania and Bulgaria. The "Black Earth" region of Russia which stretches through the Ukraine north of the Caspian Sea and into southern Siberia is one of the finest wheat-growing areas in the world. Spring wheat is grown because of the cold winters and is exported via the Black Sea.

It may be interesting to note the output of the chief European countries, the figures representing million quarters: U.S.S.R. 170; Italy 37; France 30; Germany 20; Rumania 17; Spain 12; Yugo-Slavia 11; Hungary 9; Poland 8; British Isles 7·8.

In Africa, the greatest amount is grown in Egypt (the granary of the Ancient World) and the northern Mediterranean zone whilst a considerable yield is harvested in the Union of South Africa.

Victoria, New South Wales and the Mediterranean region of Western Australia are the most important Australian wheat areas whilst the land round the River Plate in Argentina and Uruguay is the chief South American area of production, the Argentine being the world's third largest wheat exporter. The Mediterranean region of Chile is the other important wheat-growing part of South America.

World trade.—Most of the world trade in wheat is carried on between the great exporting countries of Canada, Australia, Argentina and the U.S.A. and the countries of Europe which absorb over 90 per cent of the world's wheat exports. Buying and selling is generally carried on in corn exchanges which are often situated in the great ports of the world. Examples of such are the Mark Lane Corn Exchange and the

Baltic Exchange, which are both in London. Here it is possible to keep informed of the current wheat prices all over the world, and as these fluctuate constantly according to the quantities of the grain available for sale, large sums of money are often gained and lost by the merchants. Deals in wheat often take place whilst the grain is still on its way across the ocean or even before a particular crop has been harvested.

Meat.

Beef.—It has been shown in the earlier lesson units that although cattle are to be found in all temperate and tropical grasslands, the former areas are by far the more important for the commercial development of the industry. Although many stock foods are now available such as sugar-beet refuse, cake from vegetable oils, locust and soya beans, the animals thrive best upon the rich grasses of the old deciduous forest regions. This is one of the main factors in the production of the famous English breeds that predominate amongst the areas of the world where European colonisation has taken place and where the best quality beef is obtained.

The natural grasslands of the world with their meagre rainfall and one season of green pasture make excellent ranching country, but to produce the fat cattle needed for the markets, supplies of fattening foods must be available, as in the maize belts of the U.S.A. and the Argentine. This condition together with adequate transport and the means within reasonable distance of the production of by-products such as glue from hoofs; buttons from horns and bones; manures, etc., from bones and blood; brushes from hair; pepsin and sausages from intestines, are necessary factors in development on a large scale.

Sources.—The Argentine is the greatest beef-producing country although the United States, Russia and Brazil all have a greater number of cattle. Development has been very rapid on the Pampas; pedigree stock has been introduced and there is an excellent network of railways to facilitate transport. At the great ports on the Plate River, such as Paysandu and Fray Bentos in Uruguay and Rosario and Buenos Aires in Argentina, are the great meat factories where the beef is prepared for export in many forms, such as chilled or frozen beef, corned beef, tinned tongue or meat extract. There is also a considerable export of live cattle.

The United States is the next largest beef-producing country. Here most of the cattle are reared on ranches on the high western prairies and are then sent for fattening to the maize-growing region in which Chicago, Kansas City and St. Louis are situated. These towns have huge stockyards and beef factories where the various meat products are prepared.

The countries of north-west Europe are also great cattle-producing regions, although, owing to their dense populations, they have to import beef.

World trade in beef has advanced rapidly since the perfection of methods of preservation, which include freezing, chilling and canning. Frozen meat is actually frozen hard during transport at temperatures between 10° F. and 15° F. but chilled beef is kept in chambers at a temperature of about 30° F. The latter method preserves the taste of the meat much more effectively than the former.

(India has by far the greatest cattle population, over 200 millions, but for religious and climatic reasons they are used solely as draught animals. Buffaloes supply milk and do the heavy pulling in the paddy fields.)

Mutton.—Sheep thrive best in the cool and well-drained upland regions of the temperate zones where the grass remains short and fresh. In such areas they can be reared for both wool and mutton but in the drier lands such as the Karoos of South Africa, New South Wales, Australia and Patagonia, owners specialise mainly in wool production.

Sources.—New Zealand leads the world in the production for export of mutton and

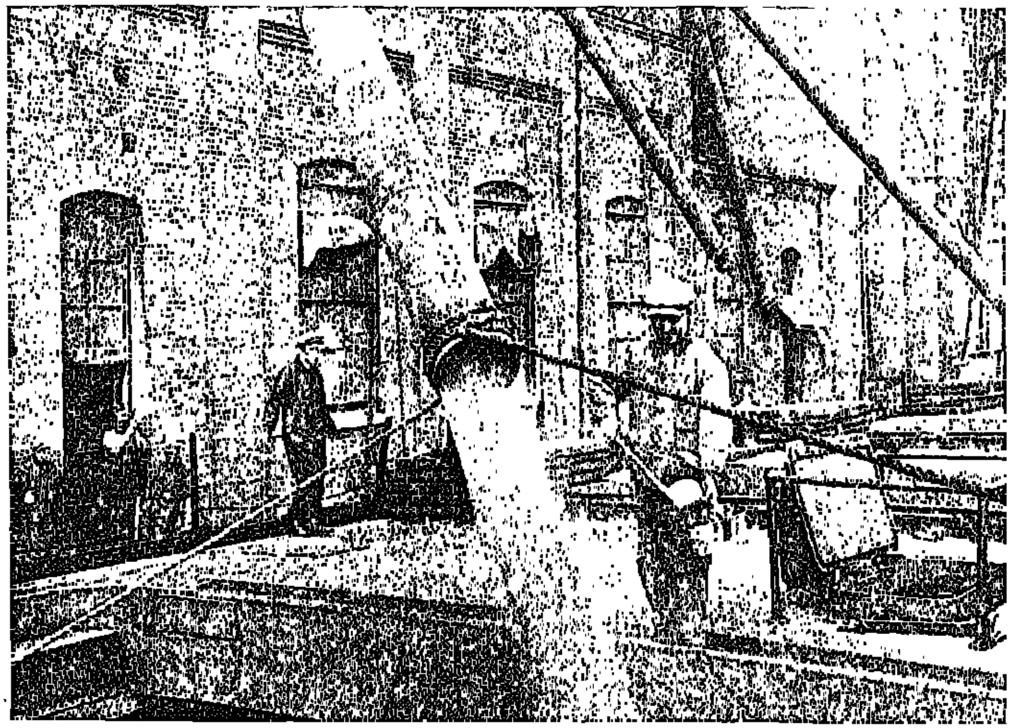

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PLATE LXXI. GRAIN INSPECTORS TAKING SAMPLES OF WHEAT AT FORT WILLIAM

lamb (Canterbury lamb), and is followed by the South American countries—Argentina and Uruguay, and by Australia. In the pampas, the sheep are reared in Uruguay and the drier areas near the foot of the Andes, whilst Patagonia produces nearly a quarter of the Argentine's total.

Britain is still an important sheep-rearing country, most of the sheep being on the limestone and chalk ridges or on the hill slopes of the western highlands: but as with most countries of north-west Europe, she succeeds in providing for only about half her total consumption and thus has to import large quantities of mutton.

Pork and bacon.—Pigs thrive in a variety of climates and also, on account of their ability to feed on waste and refuse, they can exist in densely populated areas such as China. The quality of the product from these animals depends largely upon the feeding material of the district concerned. Thus:

1. In the intensive farming lands of grains and clovers; e.g., western Europe, bacon and hams are specialities, and in the maize belt of the U.S.A. fat pigs are produced for lard and the meat-packing industry. (Chicago, Kansas City and St. Louis.)

2. Pigs of dairying regions, where a great quantity of surplus milk is available, give particularly notable bacon: e.g., Ireland, Denmark, Ontario (Canada). Scientific breeding and grading in Denmark has reached an exceedingly high standard.

3. In China, the largest pig population of all, animals are kept under possibly the worst conditions of close confinement. Trade consists mainly in bristles.

4. Pigs of the deciduous forest areas, central Europe and southern U.S.A., form

another distinctive class, the food being acorns, beech mast, etc.

Poultry.—Poultry occur widespread all over the world with the U.S.A. in the lead as regards poultry population, followed by China. The latter country has an enormous export of preserved eggs, with Egypt and Russia a long way behind in the second and third places respectively.

Albumen or the drier "white" of eggs is largely used in leather working, bookbinding and calico glazing, and trade in this commodity is quite extensive.

Ireland and Denmark once had almost a monopoly of the trade in fresh eggs with the greatest consumers of north-west Europe owing to the narrow limits of transport. Now, new marketing conditions and means of storage have led to a great development in the export trade, and Great Britain receives a regular supply from Australia and the Union of South Africa. Other large exporters are Holland, Poland and China.

Dairy produce.—Artificial selection has specialised the breeds of cattle into beef cattle and dairy cattle, and parts of the many cattle-rearing areas of the world are devoted exclusively to dairying.

The term dairy includes milk, butter and cheese. The best dairying countries are those with cool summers, mild winters and a regular moderate rainfall to keep the pastures fresh. The chief areas where these conditions are fulfilled are in north-west Europe, the Lakes Peninsula of North America, and New Zealand. Labour requirements in dairying are very exacting and the daily routine of milking and the attention which has to be paid to cleanliness are fulfilled best in those countries whose peoples have had a long training in cattle keeping. Machinery is playing an increasingly important rôle in modern dairying. Milking machines are widely used and one of the latest inventions is the "Rotolactor" which washes, dries and milks fifty cows in a little over ten minutes.

World trade in dairy produce is in the hands of a few nations since in most parts of the cool temperate belt the supplies are obtained locally. Countries situated in belts of less suitable climate for dairying tend to use vegetable fats and oils.

Milk.—It is essential that milk supplies are fresh, as this food is easily contaminated and acts as a germ carrier; and so most of it is consumed near the centre of production. Modern methods of cold storage permit transport over considerable distances but as a rule the milk supply of a large town is obtained from the region in which that town lies, and consequently a large, easily accessible market is essential for milk production on a large scale. Where, however, such does not exist, most of the milk is made into butter and cheese which can be more easily transported. Condensed and powdered milk are the notable products and Holland and Switzerland export large quantities of the former.

Butter.—Many of the great dairying regions tend to specialise in one form of dairy produce for export. For example, Denmark leads in butter production. Here each farmer sends his milk to "co-operative dairies" where the cream is separated and converted into butter. The skim milk is then returned to the farmer who uses it for the feeding of pigs. There are over a thousand such butter factories in Denmark and the quality of the produce is very high. Tropical regions are specially catered for by preserving the butter in tins.

New Zealand comes second to Denmark as a butter-exporting country, having advanced rapidly in this respect since the introduction of refrigeration. Careful supervision by the Government ensures that the quality of the produce is good. Other important exporting countries are Australia, Argentina, Holland and Eire.

Cheese.—There are many types of cheese closely associated with definite areas of production. For example, there are the Cheddar, Cheshire and Stilton cheeses of England; the Parmesian and Gorgonzola cheeses of Italy; the Edams of Holland; the Gruyères of Switzerland and the Roqueforts of France. Incidentally Parmesian cheese is made from goats' milk and Roquefort from sheeps' milk.

The country generally associated with cheese production is Holland, although its exports of that commodity are now slightly exceeded by those of New Zealand.

The Lakes Peninsula and the St. Lawrence valley regions of Canada come next in cheese export to New Zealand and Holland. Here during the cold winters the cattle are kept in artificially heated sheds and are fed with fresh fodder preserved by refrigeration in gigantic bins called silos. Other cheese-exporting countries are Switzerland, Italy, France and Australia.

Fish.—In the attention that is given to commodities that are outstanding in various countries the importance of fishing to man is often overlooked. Among people of all nations, the Eskimo, the native of the African forests, the Red Indian, the Hindu, fish form a prominent food item whether it be obtained from the sea or from rivers and lakes. Most waters teem with life and provide occupation for countless thousands of people. At the same time, fish in prodigious numbers, to permit operations on a large scale, are not generally distributed throughout the world but are concentrated mainly on the shallow water washing the continental shelves in temperate regions.

This is due, firstly, to the condition whereby light and oxygen are available for the growth of *plankton*, the minute organisms that provide the fish with food; and, secondly, to the habit of many fish in spawning in shallow waters or in rivers.

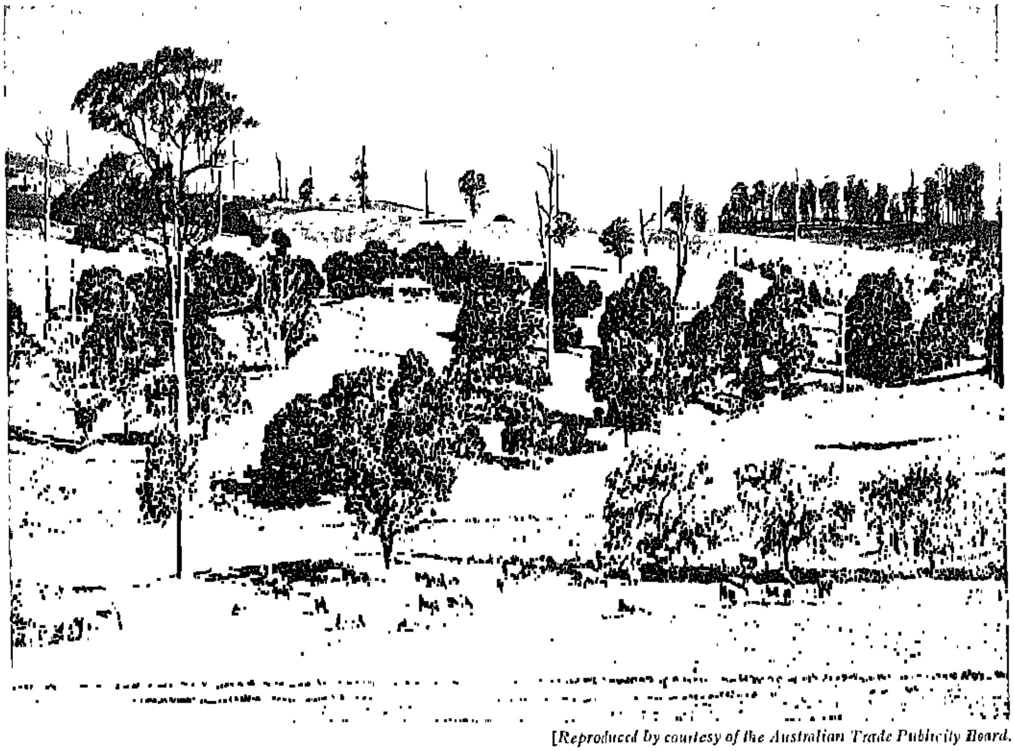

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PLATE LXXII. DAIRY FARM, VICTORIA

The areas of greatest importance as fishing grounds are:

1. *The east coast of North America.*—This includes the Grand Banks, the grounds being used by Canada, Newfoundland and the United States. European (chiefly French) fishermen have the right to fish in certain areas and also to land and dry fish on the shores of Newfoundland. The most prolific catch is cod, closely followed by haddock and herring. The cod feed on the bottom of the Banks and are generally caught on a trawl consisting of baited hooks attached at regular intervals to a line which may be 3,000 ft. long.

2. *The continental shelf of Europe.*—This extends from Norway to Spain and includes the grounds around Iceland. The chief fishing ground of this area is the North Sea where herring (50 per cent) cod (15 per cent) and haddock (10 per cent) form the chief catch. Britain, Norway, Germany and Holland make the most use of this area. With the exception of Norway these countries consume most of their catch fresh. Norway, with her small population, consumes very little but cures the fish for export, and her salted herring, cod and cod liver oil are famous the world over.

The fishing industry of Britain is the greatest and most highly organised in the world and is managed to a large extent by companies with expensive boats and equipment. That of Norway, on the other hand, is largely carried on by independent fishermen, whilst a very large proportion of the people engage in fishing as a part-time occupation, leaving their farms or shops during the period when the shoals are most abundant.

3. *The North Pacific coast of America.*—This region is noted particularly for salmon which are caught in the rivers and inlets of Alaska, British Columbia, and the north-west United States coast. The catch is tremendous, over 400 million pounds a year, and there is a danger that if this is kept up the fisheries may become exhausted.

4. *The Coasts of Japan.*—The second great fishing ground of the Pacific occurs along the coasts of north-east Asia, and the Japanese fisheries are of tremendous value to Japan because of the lack of meat-producing animals in that country. The types caught include herring, haddock and sardines, and fish forms the chief animal food of the 60 million people of Japan, besides being used as a fertiliser.

Other important fishing grounds which should be mentioned are the western Mediterranean where sardines, anchovies and tunny form the chief catch; the waters round New Zealand and south-eastern Australia, and around the Cape of Good Hope.

World trade.—As fish is a perishable commodity the fishing industry has developed most importance when near the centres of dense population; e.g., the east-coast towns of the British Isles in preference to those of the west, and Japan. Refrigeration has now greatly extended the field of trawling and British ships journey as far as the White Sea or the Behring Sea, their hauls being gutted and frozen until a sufficient catch warrants a return. With regard to the herring fishery, these surface fish are caught in such numbers by the drifters that cleaning is impossible on the ship and consequently fast *fish carriers* collect the catches and maintain a service of fresh supplies for handling at the ports.

Most of the world trade is still in preserved fish. The U.S.A. export a large amount of canned salmon, Canada sending over half her catch to the United States. Fish caught in the North Sea and the Newfoundland Banks is exported, dried or cured, to Roman Catholic countries such as Spain, Italy, Portugal and South America, whilst a large amount of salted fish is exported from Britain to Russia and central European countries.

Whaling is one enterprise that has not been mentioned. Most of the fishing is in the hands of Norwegian, German, British and Japanese firms who send factory ships chiefly to the Antarctic, each equipped with from five to seven "catcher" boats. To prevent total destruction, fishing is restricted to the season between December and March and the whales shot must not be below a particular size. Even so, between 35,000 and 40,000 whales are taken annually, the oil output being some 400,000 metric tons, most of which is consumed in the margarine industry.

Teaching aids.

Summary.—1. Main food products of temperate regions. 2. Wheat most important cereal (the reason). 3. Four main conditions for successful growth. 4. The areas in the world of greatest production. 5. Causes of changes in price. 6. Two branches of cattle industry. 7. Requirements for successful breeding for commerce. 8. Six notable by-products from beef cattle. 9. Two branches of sheep industry with reasons. 10. The greatest wool region; the greatest meat region. 11. Conditions best suited to fish. 12. The chief fisheries of the world.

Questions.—(*a*) Plenty of wheat can be grown in the world for everybody. Why is the price so high that many people cannot afford to buy wheaten bread? (*b*) In England farmers obtain 30 bushels of wheat from each acre sown; in Australia they obtain 12, in Canada 9, and in South Africa 8. Can you give a reason for such low results? (*c*) In Canada wheat in the ground has been known to survive the intense cold of 20° of frost on one condition. What is that condition? (*d*) Why is it that only certain types of wheat can be made into maccaroni and spaghetti? (*e*) English breeds of cattle and sheep are the finest in the world. Why then are our herds and flocks so few in number? (*f*) What is there in hoofs, horns and bones that makes a particularly good fertiliser for the soil? (*g*) Of what value is pepsin? (*h*) A piece of fat pork is introduced into tins of beans by the American canneries. What beans are used, and where do they come from? (*i*) How is a great deal of powdered milk used? (*j*) What sort of fish is cooked in the fish-and-chip shops? How is it that prices are so reasonable for a good meal?

Statistics.—The following can be of great use in compiling diagrams, graphs or in completing maps of commodities. The figures in each case represent millions.

Sea fisheries (tons)

Japan	3·3
Korea	1·5
U.S.S.R.	1·4
U.S.A.	1·3
U. Kingdom	1
Norway	1
Others	1·6

Wheat movements (quarters)

Exporters		*Importers*	
Canada	30·4	U.K. & Eire	25·4
Australia	8·6	U.S.A.	6·9
Argentina	7·3	Belgium	5·5
Rumania	2·8	Brazil	3·6
Hungary	2·6	France	2·4
Others	8·5	Others	15·6

Cattle

India (+ 45 buffaloes	164
U.S.A.	67
U.S.S.R.	56·5
Brazil	40·8
Argentina & Uruguay	38
China (+ 12 buffaloes)	22·6
Germany	20

Sheep

Australia	115
India*	94
U.S.S.R.*	73·3
Argentina & Uruguay	55
U.S.A.	53
China*	43
S. Africa*	42
N. Zealand	31·2

Pigs

China	63
U.S.A.	42·8
U.S.S.R.	30·4
Germany	25·9
Brazil	24·8
England & Wales	4·4

* Includes Goats.

LESSON UNIT V—FOOD SUPPLIES (2)

Sugar.—This commodity is the commercial extract of the sucrose contained in a variety of plants, notably the sugar cane, the sugar beet and, to a much lesser extent, the Canadian maple tree. Of the three sources, the first-named supplies about two-thirds of the world's requirements and the second one-third.

Sugar cane.—The plant is a gigantic grass of the hot, wet lowlands of, according to the variety, tropical and sub-tropical regions. Water equal to 40 in. annual rainfall is required for successful cultivation. Complete growth occupies about thirteen months, the plants being grown either from cuttings or from the "stools" remaining in the ground from the previous harvest. Harvesting, done by hand, is a laborious process in the muddy plantations and accounts to a great extent for the need for a plentiful supply of native labour in most regions.

The preparation of the sugar.—The old system of juice extraction by rollers worked by windmills and then the later process of refining is being rapidly superseded by modern methods. Light railways are used in transporting the canes from plantation to factory. The introduction of high-class machinery has now made possible the production of white sugar from cane and also from beet juices by a direct process. Briefly, the steps undertaken are:

1. Juice extraction by a series of crushing operations during which the product is saturated with water from spraying pipes.

2. Chemical treatment with lime, and sulphur and carbon dioxide gases to remove impurities and decolourise the juice.

[*Reproduced by courtesy of the High Commissioner for Southern Rhodesia.*

PLATE LXXIII. TEA GARDEN, SOUTHERN RHODESIA

3. Evaporation of water, in closed vessels under a vacuum to prevent the destruction of sucrose at high temperatures.

4. Crystallisation from the saturated syrup.

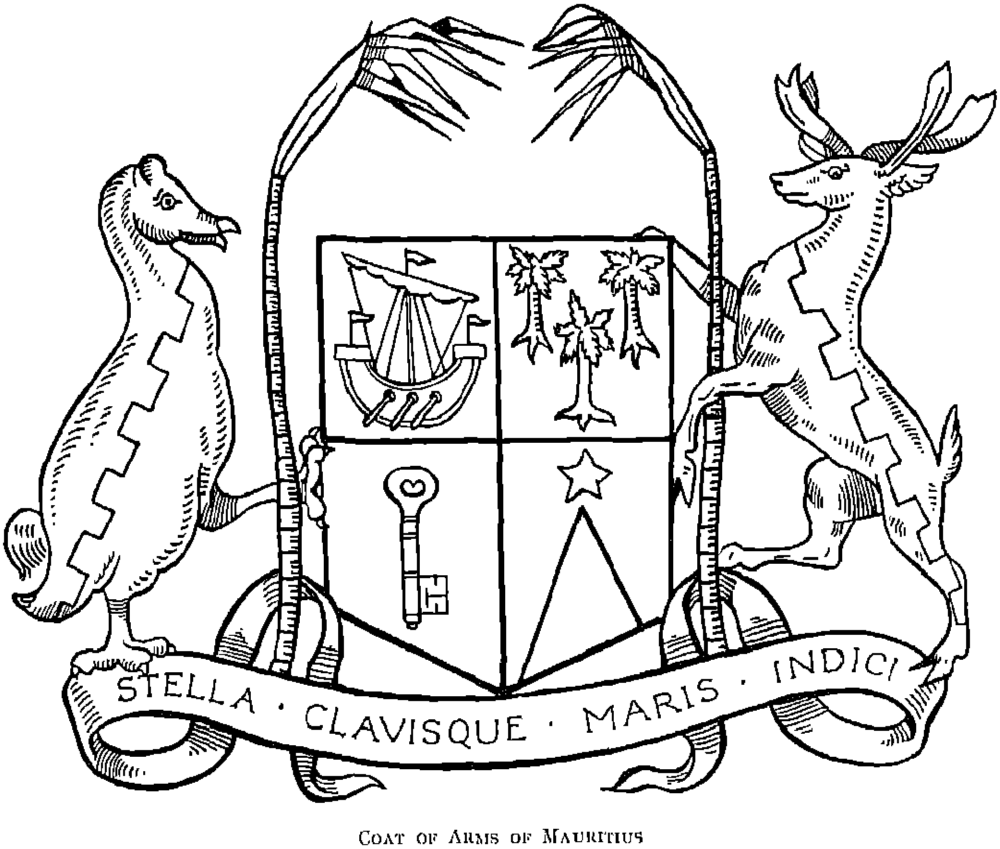
5. Separation of the crystals by rapidly revolving the mass, in perforated, steel cylindrical drums lined with copper wire gauze.

The "mother" liquor from which no more sucrose can crystallise is called molasses and is used in the production of rum or as cattle food. Other by-products are crushed cane used as fuel and filter-press cakes used as a fertiliser.

To obtain the highly refined article of the shops, further processes are necessary for the raw crystals, treacle being the main final by-product.

The three largest sugar-cane producing countries in the world are India, Cuba and Java.

Cuba and other islands of the West Indies have ideal conditions and are noted for the quality of the sugar, labour being supplied by the descendants of former African slaves. The India supply, not adequate for the needs of the country, is still largely of a poor quality. Other areas of production are the Mississippi delta (Louisiana), Mexico, Central America, the coasts of Brazil, Peru and the Guianas (British Guiana is the source of much "Demerara" sugar), and the coast of Queensland and of Natal. Most islands in tropical latitudes grow cane sugar, the most important being the Philippines, Mauritius, Hawaii and Formosa.



Coat of Arms of Mauritius

Sugar beet.—The development of this essentially temperate crop began with the stoppage of cane-sugar supplies to France during the wars of the late 18th century. German scientists, however, made the product possible commercially and the tendency to-day is for this source of supply to oust cane sugar wherever it can be grown successfully.

The beets need a great deal of hard labour during their cultivation. Soil must be well fertilised, weeds kept down and though the grown roots are machine dug, "snacking" the tops, cartage and storage are all hand jobs at harvest time. On the other hand it is an excellent crop for rotation in intensive farming, the tops make a valuable cattle fodder and the shredded refuse after juice extraction makes further food for pigs and other animals. Sugar beet is thus a typical product of well-populated and well-organised farming areas.

The extraction of the juice is different from that with sugar cane. In this case the roots are washed, sliced and immersed in warm water in cylindrical vessels or diffusers which are connected by pipes, some ten to fourteen forming a battery. Water passes from one diffuser to another extracting the sucrose from the slices in turn until it has reached a high enough density to be drawn off. The liquid then undergoes treatment with lime, carbon-dioxide and bleaching agents until it is ready for crystallisation.

World production.—Most of the European nations are seriously concerned in the cultivation of sugar beet. The U.S.S.R. is the world's greatest producer, closely followed by Germany. Large quantities are grown in the U.S.A., south of the Canadian border, but "extensive" farming methods and a shortage of labour militate against a great success with the crop.

It is interesting to compare the results obtained from growing sugar cane and sugar beet on an acre of land. In Germany 12 tons of beets were produced, giving 2·19 tons of commercial sugar. In Java 42 tons of canes were harvested, producing 5·5 tons of sugar or about 2½ times that of beet.

Tea.—The production of tea, the dried leaf of an evergreen shrub, is confined almost exclusively to the monsoon lands of Asia. It flourishes on deep, fertile, well-drained soil, and generally hillsides are used as sites for tea gardens although it is grown extensively in lowlands where drainage is given special attention. The shrubs, grown from seed, are carefully pruned until bushes rather less than 5 ft. high are obtained, which yield in India, after about the sixth year, anything from 400 to 1,000 lb. per acre annually. Pickings depend entirely upon the locality for it is essential that the shrubs are able to recover after plucking. Thus, in Ceylon with its great heat and humidity, "flushes" take place every week or ten days, whereas in China and Japan, where conditions are cooler and drier, only three or four take place during the summer season.

Another essential factor in tea growing is the existence of a large population of people skilled in agricultural work, for the processes require careful and delicate handling. Monsoon lands supply the very type required, for here the peasants are steeped in the lore of centuries of husbandry.

Commercial production.—After the tea has been gathered it is withered by being placed in shallow trays and is then rolled by a machine. Then the leaves are partially fermented by being placed in a damp atmosphere and finally dried and graded by being passed through sieves of varying mesh. Since teas vary very greatly according to the age of the leaf, blending is an important operation. Blends are made on the advice of highly paid tea tasters who are able to distinguish the smallest differences in the varieties of tea placed for their judgment. The taster is confronted by a row of little china pots and a small sample of each type of leaf. The tea is first weighed and the liquid is then made and allowed to stand for about five minutes. Only a small sip is taken, rolled round the palate and then ejected. From what he has detected in the flavour and quality, the taster is able to advise a blend that will give satisfaction to the tea drinker.

World trade.—Great Britain takes over half the tea in the world's market, and it is estimated that the people of Britain consume about 7 lb. of tea per head per year. A large proportion of this comes from India, whilst London, as the world's greatest tea market, has a big *entrepôt* trade in that commodity. The United States is the next largest consumer but imports largely from Japan. Russia imports low grade teas from China, whilst Holland is supplied by Java. Other large importers are Australia, New Zealand, Canada and Eire.

The yerba-maté of South America is different from ordinary tea and is obtained from the leaves of a tree which grows in the forests of Paraguay. It is a very popular drink in the countries of the Parana-Paraguay basin but it is not consumed in appreciable quantities elsewhere.

Coffee.—As with tea, coffee is an evergreen, hillside shrub demanding similar conditions of soil, but on the other hand it cannot withstand frost or the direct rays of the sun. Further essentials are a dry period in order to ripen the fruit, from which the twin seeds or beans are extracted, and a good supply of cheap, native labour.

Cultivation of the shrub is thus restricted to particular areas within the tropics: equatorial regions are usually too thinly populated; in East Africa the labour supply is a difficulty and in Australia the hillsides of Queensland are unused owing to the coloured labour ban.

World production.—Yemen, in the south west of Arabia, is the real home of the coffee

[Reproduced by courtesy of American Colony Photographers, Jerusalem.

PLATE LXXIV. COFFEE PLANTATION NEAR NAIROBI, KENYA COLONY tree and here the perfect geographical conditions for its growth result in the famous "Mocha" brand. The coastal slopes of the Brazilian highlands form, however, the chief centre of the world's supply (70 per cent). In the state of São Paulo the huge "self-contained" faciendas or estates are situated on the volcanic soils at heights from 2,000 to 5,000 ft., some bearing as many as 700,000 trees. The employees are partly descendants of freed slaves and partly immigrants from Italy and Germany and obtain all their requirements—schools, cinemas, hospitals, etc.—within the faciendas. Santos is the chief port, almost the "coffee capital" of the world.

Other important producing states in South America are Colombia, Venezuela and Ecuador, and altogether South America produces about 80 per cent of the world's total. The remainder comes mainly from Central America, the West Indies and the Dutch East Indies. The West Indies, notably Jamaica, specialise in fine grades of coffee, and the Blue Mountain coffee of Jamaica is reputed to be among the finest in the world.

Kenya is another area within the British Empire that is increasing rapidly in importance, Plate LXXIV.

World trade.—As consumers of coffee the British people are far behind many other countries. Against the 2 lb. per head consumed in one year in this country, the Dutch, Swedes and Belgians consume about 15 lb., the Americans about 12 lb. and the French and Germans about 7 lb. England, therefore, does not figure largely as a coffee importer and the chief countries, in order, are the United States, France, Germany, Italy, Belgium, Sweden and Holland.

Cocoa.—The word cocoa, a corrupt form of the Mexican word cacao, is the name of an evergreen tree of equatorial regions. Its height is similar to that of an apple tree but the seeds used are contained in bulbous pods of about 1 lb. in weight that grow on slender stems from the trunk and main branches. The main requirements for cultivation are:

1. A climate with an average shade temperature of 80° F. and a heavy, well-distributed rainfall (50 to 150 in.)

2. Protection from the direct rays of the sun and from tropical hurricanes. This is generally done by planting the young trees under banana trees. The massive leaves provide a wind break and a sun shelter. Incidentally the protecting tree often supplies the more valuable crop.

3. Abundant coloured labour.

From a seedling the cacao tree begins to bear in four or five years and when full grown produces some 6,000 flowers which develop into no more than twenty pods. These are harvested by means of a knife at the end of a 20-ft. pole, the pods being then split and the beans scooped out. The latter are placed in boxes between banana leaves and left to ferment for several days. When this is finished the beans are dried in the sun and put into bags for transport to the factory (generally this is in the importing country; e.g., Bournville in England) where they are sorted, roasted and ground up into a paste. This, when raw, contains over 50 per cent of cocoa butter, more than half of which is removed in the further processes by which the household varieties of cocoa are produced.

A startling fact arising from cacao production is that the average yield of cacao beans to a tree is not more than 2 lb. each year, the best producing 3 lb. at the most.

World production.—There are two main regions of cacao production, the Gold Coast and Nigeria (including St. Thomé and Principe), which supply half the world's requirements, and Central and Southern America within 20° of the equator. In the Gold Coast forest area cacao flourishes extraordinarily with the minimum of labour. Plantations are native-owned and are developed by clearing undergrowth, raking in the seed and leaving the forest trees to provide the shade—a vastly different undertaking from the organised plantations and imported native labour of the coasts of Brazil, Ecuador and Venezuela. Other areas of importance in the West Indies are Trinidad, San Domingo and Jamaica.

World trade.—Most of the world's cocoa is consumed outside the areas of production and there is thus a large trade in the commodity. The chief importing countries in order are the United States (supplied chiefly from South America), Germany, Great Britain (supplied from West Africa and the West Indies), France (from West Africa), the Netherlands and Switzerland. In Spain, chocolate is a very popular drink, introduced by Cortez from his discovery of chocolatl, the national drink of the Aztecs. The important cacao markets of the world are situated at New York, Hamburg, London, Liverpool, Amsterdam and Le Havre.

Teaching aids.

Summary.—1. Sugar, definition. 2. Requirements for cultivation of sugar cane. 3. By-products for extraction. 4. Chief world sources. 5. Requirements for growth of sugar beet. 6. Why production necessary. 7. Tea planting, why a product of monsoon lands. 8. Special needs. 9. Chief world sources. 10. Coffee—type of plant. 11. Why growth restricted to few areas. 12. World's chief coffee drinkers. 13. Cacao, tree of equatorial zone. 14. Two main regions of the world.

Questions.—(*a*) Sugar cane is a far better-paying crop than sugar beet. How is it that the price of each is the same in the shops? (*b*) There is no difference in the taste between cane and beet sugar. Why? (*c*) Why are by-products of great importance in any industry? (*d*) What is the difference between Orange Pekoe tea and Souchong? (*e*) What is brick tea and how do certain people use it? (*f*) Look up the word *samovar* and say how Russian tea is made. (*g*) Some people prefer to drink coffee that has been mixed with chicory. What is this and how is it used? (*h*) At what period in European history did coffee drinking become exceedingly popular? (*i*) Write down three uses of cocoa butter. (*j*) Find out the names of six important British chocolate- and sweet-making firms together with the situation of the factories.

Statistics.—Annual productions, figures represent million tons:

Cane sugar	
India	4·1
Cuba	2·8
Java	1·3
Philippines	1·2
U.S.A. & Puerto Rico	1·0
Brazil	1·0

Beet sugar	
U.S.S.R.	2
Germany	1·6
U.S.A.	1·2
France	·8
Czechoslovakia	·6
U. Kingdom	·5

Tea (*restricted*)	
China	·4
India	·18
Ceylon	·1
E. Indies (Dutch)	·08
Japan	·05

Cocoa	
Gold Coast	·26
Brazil	·13
Nigeria	·08
Fr. W. Africa	·08

Coffee	
Brazil	11·3
Colombia	·22
E. Indies (Dutch)	·11
Venezuela	·07
Guatemala	·07
Salvador	·06

Map work.—(*a*) The famous old China clippers once engaged in the tea trade between China and Europe were built specially for speed and to make use of the lightest winds. Trace their route on a world map noting especially where calms and regular winds were met. (*b*) Show on a map the routes by which tea, cocoa and coffee are distributed from the centres of production.

Writing.—Write a short description of cacao production in West Africa. Note particularly the difficulties of export; lack of transport to coast (tsetse fly region); loading troubles at the port (surf).

LESSON UNIT VI—SOME RAW MATERIALS OF THE TEXTILE INDUSTRIES AND OTHER FIBRES

Introduction.—Many changes have taken place since the passing of cottage industries and the movement of raw materials to the factory, situated with special geographical advantages for output on a large scale, began. Each year the supply of raw materials grows more vital and competition between nations becomes fiercer as new methods offer industries to countries once regarded as purely agricultural. Partly to cope with the demand, new fabrics have been invented and fibres unheard of a few years back have been utilised as substitutes. Wool and cotton, however, still reign paramount as the basis for clothing and various domestic articles of modern man, and it is of these that this series of economic studies will deal mainly.

Wool.—Since the days when man discovered that it was better to use the clipped hair of an animal than to kill it in order to provide himself with skin clothing, sheep have been of the most importance in temperate lands. The conditions under which the animals thrive best for mutton or for their wool have been noted already and so it may be sufficient to mention that in Great Britain those conditions are fulfilled ideally for raising the finest type of stock.

Animals running semi-wild over the wide grasslands of Australia and the Argentine tend to deteriorate to the degraded types seen in the vast flocks that are herded in the poor lands stretching easterly from the Balkans through Asia Minor to the plateau in the middle of the continent. Consequently, frequent re-stocking is necessary in lands of suitable climatic conditions (not too hot as in India or too wet as in the cattle lands) with English, Leicesters, Lincolns, Devons and Cotswolds. These in their turn are crossed, especially in Australia, with merinos, fine, long-woolled sheep that are natives of the Atlas region and also thrive on the high *meseta* of Spain. Where wool alone is required merinos are raised solely but, as their meat value is low, cross-breds are mostly preferred.

World production and trade.—Australia is the chief wool-producing country in the world, 90 per cent of its wool being exported, chiefly to Great Britain, France, North America and Japan. Over half the sheep are in New South Wales where the rather dry climate of the "Downs" is very suitable for wool sheep.

The United States, Argentina, New Zealand and the Union of South Africa are the next largest wool producers, although the United States does not produce enough for her own requirements and has to import almost as much as she produces. The chief areas are in the dry western plains of Texas, Wyoming and Montana.

Britain takes very little wool from the Argentine and Uruguay, which together come second to Australia as exporting countries. The sheep are reared on the drier parts of the pampas. In South Africa the majority are found on the High Veld in areas which have between 20 and 40 in. of rainfall.

New Zealand and Russia are other large producers although there is very little exported from the latter country. As has been seen, New Zealand specialises more in mutton, although as a wool-exporting country she comes third after Australia and Argentina.

There is a large number of sheep in India and China but the wool is of poor quality and is used chiefly for carpets and coarse goods.

Manufacture.—No country shows better than Great Britain the steps by which the making of woollens has developed from humble hand processes, resulting in simple striped patterns, seen in the tartans or the Welsh shawls, to the great industrial concerns surrounded by associated industries as in the coal area of the West Riding of Yorkshire. To-day the word mill, meaning a factory, still persists as a relic of the days when the water wheel used firstly for the flour mill superseded the spinning wheel as a means of motive power. Then again, specialised skill or particular qualities created by local conditions has enabled well-known types of woollens to remain attached to their original districts; e.g., Harris tweeds, Witney blankets, Wilton carpets.

Similar developments can of course be traced in other great woollen manufacturing districts of western Europe such as the Ruhr district of Germany; Saxony with its special weaves of cloth, and the area marked by Lille, Roubaix, Brussels, Liege, a former notable sheep country, and then industrialised following the working of the coal measures. None, however, has come near the pinnacle attained by the West Riding industries and to-day the quality and variety of the work is still paramount although competition has taken away some of the security once enjoyed in world markets.

All types of woollens are produced; carpets, hosiery, cloths, complete suits, flannels, shoddy, flocks for padding and lanoline and soap are returned as by-products from the grease extracted after washing the raw wool. The industry is unlike cotton in its organisation.

Cotton.—The cotton plant is a small shrub, of which there are several species. The finest of these, noted for its long, fine fibres, is known as Sea Island cotton and probably originated in Barbados. Then there is the American cotton which has moderately long fibres, the Asiatic cotton with short wiry hairs, and the tree cotton of South America which forms a woody tree 10 to 15 ft. high. Island cottons and those American cottons whose fibres exceed 1 in. in length are known as long stapled cottons, the others, some with fibres of only ½ in., being known as short stapled cottons. The conditions required for satisfactory cultivation can be summarised as follows:

1. Two hundred consecutive frost-free days.
2. A hot and moderately damp atmosphere with frequent showers during the early stages of growth, followed by:
3. A dry, sunny period until the harvest.
4. Well-drained soils yet capable of retaining moisture (e.g., the sticky black cotton soils formed from the decomposition of lava on the Deccan of India).
5. A mean annual rainfall of at least 23 in.
6. Cheap labour supply.

These conditions are best satisfied in the drier parts of regions having the Sudan or tropical monsoon types of climate in the maritime parts of the warm temperate belt, and in irrigated desert areas. The sixth factor is very important since a large and sudden demand for labour occurs at harvest time. This is because the crop cannot be harvested as with cereals as the bolls or fruit containing the lint and seeds often ripen irregularly and consequently monotonous picking here and there has to take place continuously. After picking, the mass is taken to the ginning factory where the lint is freed from seed and pressed into bales of 500 lb. each for shipment.

World production.—The climate of the south-eastern states of the U.S.A., with the exception of the waterlogged coast plains and Florida, is ideal for cotton growing and produces over a third of the world's supply. The chief areas are the "Black

Belt" of Alabama, the Mississippi lowlands, the Black Prairies of Texas and the coastlands of Georgia and North and South Carolina. Sea Island cotton is grown in the last-named district, whilst the largest producing state is now Texas. Cotton is a very exhausting crop to the soil and unless crop rotation is practised in the older lands the cost of satisfactory fertilisers becomes very high. Negroes, descendants of the 18th century slaves, supply most of the labour required for drilling the seeds, thinning out the plants and picking, as the end of August approaches. In some parts, as in Queensland, Australia, families of white people manage small holdings themselves. The crops are then collected under a co-operative system for selling in bulk.

India is the world's next largest producer, but the crop is generally of short staple and is used locally or exported to Japan, China and southern Europe. The main areas of production are the black cotton soils of the north-west Deccan, the alluvial soils of the upper Indo-Gangetic plain and certain parts of Madras where the soil is suitable.

China is also a very large producer but most of the cotton is absorbed in the country. The quality is poor on the whole, and the chief areas of production are the lower Hwangho and Yangtze valleys.

Egypt is very important to Britain as a cotton-growing country as the fibre is of excellent quality. The plant is grown by irrigation in the delta and valley of the Nile but owing to the limited amount of space the amount produced is comparatively small, although the yield per acre is very high (390 lb. as against 130 lb. in the United States of America).

Other cotton-growing areas are north-east Brazil, Peru and Argentina; in the two first-named countries a considerable proportion is tree cotton. Short staple cottons are also becoming of great importance in U.S.S.R. east of the Caspian Sea.

Of the above areas India only is within the British Empire, and as the type of cotton produced there is not suitable for the British cotton industry a scheme has been drawn up to encourage cotton growing in the Empire. British territories in Africa offer the most suitable conditions and considerable developments have ensued. Native-grown cotton is now the chief export of Uganda whilst Tanganyika, Rhodesia, Nigeria and the Union of South Africa all grow considerable quantities. The most promising area of all, however, is the Gezira plain in the Anglo-Egyptian Sudan irrigated from the Sennar Barrage on the Blue Nile.

Manufacture. — The present financial stability of England has come to a great extent from the tremendous boom in cotton products following upon the introduction of mass production methods in Lancashire. Geographically, the site was ideal for the industry; water, coal, skilled workers, excellent facilities for import and export, chemicals from nearby salt mines, and humid atmosphere to retain the suppleness of the threads were all present, and for many years Great Britain supplied a large percentage of world requirements. To-day, new forms of power, machines and artificial humidifiers in the factories have given the industry a world-wide significance and competition has become very keen.

The chief processes from factory to shop may be summarised as follows:

1. Yarn is spun from a mixture of various kinds of cotton that have been disentangled, rolled flat and then drawn out into long, soft slivers that are stored in tall tins.
2. The yarn is woven on looms into cotton cloth.
3. The cloth is bleached, singed to remove loose hairs, then treated with milk of lime, acid and soda and finally dried and pressed into bundles. Numerous washings occur at most stages.
4. Dyeing or printing with the pattern desired is the final process before dispatch to the wholesale dealers.

All these processes do not take place in one factory or even in one district. In Lancashire the industry is divided into two distinct branches, spinning and weaving.

Most of the great weaving towns are situated north of the Rossendale forest, whilst the spinning towns lie north and east of Manchester.

The reason for this type of organisation is that the weavers require a very great number of different yarns for the various types of cloth produced. Therefore, instead of installing spinning machinery which could turn out only a few grades of yarn, they find it cheaper to buy from various spinning mills which specialise in particular grades. Bleaching, dyeing and finishing are also carried out by independent firms.

Of the other countries of the world, Japan has developed a highly efficient cotton industry especially in the low-grade cloths required by the Indian market. In America, the New England States with advantages of Pennsylvanian coal, water, operatives, and raw material in the country, are naturally prominent but manufactures are increasing within the cotton belt itself in the towns situated along the *Fall Line.* India and China are also developing their own cotton industries and Bombay, Lucknow, Cawnpore, Shanghai and Hangkow are but a few of the towns with efficient modern mills. Outside the British Isles the chief areas in Europe are northern France (Lille, Rouen, Amiens), the Ruhr area (Barmen-Elberfield) in Germany, the Lombardy plain of Italy and the Swiss plateau (both supplied with hydro-electricity), Belgium (Liegè, Brussels, Ghent) and in the U.S.S.R., Moscow.

Other fibres.—The amount and variety of fibres, both animals and vegetable, required for the innumerable products of modern industry are enormous; sometimes they supply a new article in themselves; sometimes they go to form an admixture that will furnish a product of attractive cheapness.

Among the vegetable fibres, flax, hemp and jute are outstanding. *The flax fibre* is obtained by *retting* the stem of the well-known annual plant of Northern Ireland and the mid-European plain. Its preparation is of great antiquity; the use of flaxen cords and nets date back to the Stone Age and in biblical times the "fine linen" of Egypt is frequently mentioned. To-day, Russia and the Baltic lands together produce three-quarters of the world's supply though in warmer areas such as Russia, south of the wheat lands, Indian and the Argentine, the seed is of great value and large crops are grown for the *linseed* oil product alone. The making of linen, once a familiar cottage industry in western Europe, declined with the rise of cotton and eventually became industrialised. It is still practised freely in the home in Russia but in other notable districts such as around Courtrai and Brussels (linen and lace), Cambrai (cambric), Holland (holland) and the towns of Northern Ireland and eastern Scotland (linen and canvas) the machine has become necessary for the sake of commerce.

Hemp is the name given to a number of fibres, some from stems of plants and others from leaves, but the usual plant is an annual of some 5 to 8 ft. high that requires a warmer climate to that for flax. It is cultivated freely for fibre in the southern European countries, notably Italy and Russia and China, Japan and the U.S.A., and for the narcotic drug which goes under various names such as hasheesh, bhang and marijuana, in India, Arabia and Mexico.

Hemp fibre is the strongest and most durable of the commercial fibres after flax. It produces the best quality ropes, twines and canvasses as required in the fishing industry and, being soft, or bast, material, is often used as a substitute for the coarser types of flax.

Jute, a plant of 5 to 10 ft. high native to the lower Ganges valley, produces a fibre that, though decidedly inferior in tenacity and durability to that of flax and hemp, is in great demand commercially. It becomes brown in colour and harsh and brittle with age but it can be bleached readily and will dye even in delicate colours. At one time, gunny cloth or sacking was the main product of the yarn from the Calcutta mills but now it is used for a variety of purposes such as hessian, tarpaulins, carpets, rugs and matting, ropes, strings, linoleum and wig making.

Other vegetable fibres of importance include the *manilla hemp* or abaca of the Philippine Islands, now used extensively for cables, hoisting ropes and slings where great strength and durability are required; *sisal* hemp or hennequen, a prickly agave of Yucatan, Tanganyika, Kenya and the Bahamas, whose rough leaves supply valuable cordage and strings of the type used by farmers in "self-binders," and *coir* or coconut fibre used for matting, brushes, rope and stuffing for upholstery. To these may be added *piassaba,* the fibre from the leaf-stalks or sheaths of various palms, used for brooms and brushes; stiff *African bass* from the trunk of a low tropical palm, that forms the material for yard brooms, and *bassine* for scrubbing brushes, from India. Then there are *bamboo* fibre for chair seats, *withy* from willow trees for baskets, *kapok,* the downy covering of the seeds of a tall evergreen tree from the West Indies, used mostly for waterproof stuffing, *ramie* or *China grass* used for making gas mantles, nets and clothing fabrics and a host of fibres from various grasses.

Silk, probably the most notable of the lesser-used animal fibres, is a product mainly of the monsoon lands of China and Japan, the supply depending upon the heat and rainfall to permit rapid renewal of the mulberry leaves on which the caterpillars, providing the silk, feed and also upon the labour supply. The rearing of the caterpillars is carried on by the women and children of the peasantry in their homes, silk cloth thus becoming the cheapest material available in many parts.

In Mediterranean lands the industry is also prominent but more difficult as feeding time must be completed before the summer sun prevents leaf growth.

In China most of the silk, as a cottage industry, is needed for local use, but Japan exports a great deal of the raw material and in the U.S.A. and in western Europe manufacture is carried on. The plain of Lombardy, southern France, the Ruhr district, the textile districts and Nottingham in England are notable European areas. Usually the operatives in the industry are women and consequently silk manufacture often becomes a parallel industry in a town where husbands and sons are engaged in heavier work. Thus in the U.S.A., the iron and steel towns of the Pennsylvanian coalfield consume more than half of the world's total exports of raw silk.

Among the other animal fibres that are used extensively in commerce, those in greatest demand are *camel's hair,* used in the carpet trade and also for clothing and fine brushes, and *mohair,* the silky product from Angora goats now bred mainly in the Cape region of the Union of South Africa, Asia Minor and the western U.S.A. The material is woven into dress materials, plushes, braids and heavy cloths but the industry, once strongly entrenched in Bradford, Yorkshire, has been badly hit by the increasing demand for artificial silk. The South American fibre-bearing animals, the llama, alpaca and vicuna in particular, also supply beautifully soft, lustrous yarns as do the goats of Kashmir. One animal too that must not be forgotten, is the pig. Bristles varying in length from 2 to 8 in. and cleaned and graded in ¼ in. sizes form a very important article of export from China, the U.S.S.R. and India. The best brooms and brushes are made of this material, which has a far more lasting quality than vegetable fibres.

The fibres mentioned in these notes by no means complete the vast army of raw materials required to-day for textile and other industries, but from them can be gathered some idea of the wide-stretching ramifications of commerce in order to meet with the rising scale in living of civilised man.

Teaching aids.

Summary.—1. Raw materials—definition. 2. The principal ones of the textile industries. 3. Wool sheep, requirements. 4. Centres of world supply. 5. Woollen industry, why established in special areas. 6. Causes of the industry beginning in other countries. 7. Cotton, the main conditions for growth on a commercial scale. 8. Chief areas of production. 9. Why cotton manufacture settled in Lancashire. 10. New developments that help competitors. 11. The three other leading vegetable fibres. 12. The chief characteristic of each, showing how they differ. 13. The silk-producing regions of the world. 14. Six other fibrous materials—three vegetable, three animal.

Questions.—(*a*) One of the secrets of success in all industries is to make use of all waste matter. What is done with the waste in cotton and woollen mills? (*b*) What is meant by "teasing" cloth? With what object is it connected? (*c*) Real Astrachan is very expensive and a very wasteful material. Why? (*d*) The term "cheap labour" is often employed to signify native labour in hot countries. Why are natives paid less than working people of white races? (*e*) What is mercerised cotton? (*f*) What is meant by "cottage industry?" Name one that occurs in your own district. (*g*) Bast or bass is a fibre used in almost every home or garden. Where does it come from? (*h*) What are the "Fall Line" towns of the U.S.A.? (*i*) Look up the name "boll weevil." How is a weevil different from other insects?

Statistics.—For use in diagrams, showing comparative importance of various regions. Productions in 1,000,000 tons:

Cotton (ginned)	
U.S.A.	26·9
India	11·4
China	8·5
U.S.S.R.	7·7
Egypt	4·2
Brazil	3·9

Wool	
Australia	4·4
U.S.A.	2·
Argentine	1·7
N. Zealand	1·3
U.S. Africa	1·3
U.S.S.R.	·9

Flax	
U.S.S.R.	5·5
Poland	·4
Germany	·3
Lithuania	·3

Jute	
India	15·5

Hemp	
China	2·
Philippines (Manilla)	1·9
U.S.S.R.	1·4

Sisal	
Mexico	1·1
Tanganyika	·8
E. Indies (Neth.)	·7
Kenya	·4

Raw Silk	
Japan & Korea	·5
China (exports only)	·05
Italy	·02

Linseed	
Argentine	18·5
U.S.S.R.	7·5
India	4·0
U.S.A.	1·5
Uruguay	1·3

Map work.—(*a*) Show on a map of the world the centres of production of the chief fibrous materials. Indicate by black arrows the movements of the raw materials to industrial centres and by red arrows the movements of manufactured articles.

(*b*) Draw maps showing why the cotton industry became centred in Lancashire or around Paisley (Great Britain); or the woollen industry in New England (U.S.A.) or the Ruhr district (Germany).

Research work.—(*a*) Among other fibrous materials, furs have been noted already but no particular mention has been made of feathers. Make a study of these. Find out the birds whose feathers are utilised. Note the climatic and other conditions under which they live. Find out also the uses to which the feathers are put and the main sources of world supplies.

(*b*) Make a list of all fibres in use at home. Gather samples if possible and distinguish between good and bad quality materials. Compare prices with the length of service given by various articles. Notice how mixtures are made of various materials in order to reduce prices.

Writing.—Write an essay on the subject *Living pests that hinder man's progress.* These, of course, are innumerable and range from minute organisms to large animals. Hence it is advisable to restrict your attentions to a few types whose ravages are most noticeable in special regions. Some examples as a guide are: *Insects*—the boll weevil, the tsetse fly, the mosquito, the white ant; *plants*,—the sudd, the prickly pear; *animals*—the rat, the rabbit.

LESSON UNIT VII—TIMBER AND SOME ASSOCIATED PRODUCTS

Introduction.—The forest lands of the world have come under consideration from time to time in previous studies. It may be found convenient in this lesson unit if the main facts are summarised firstly. They are:

1. The areas of the world naturally forested are those with an all-year-rainfall—the temperate west coasts, the east coasts affected by regular trade winds, the equatorial belt, those parts of Japan and China with rain at both monsoon seasons and the cyclonic area of the eastern North American coast.

2. The extent of the forests depends on the water supply and the length of the growing season.

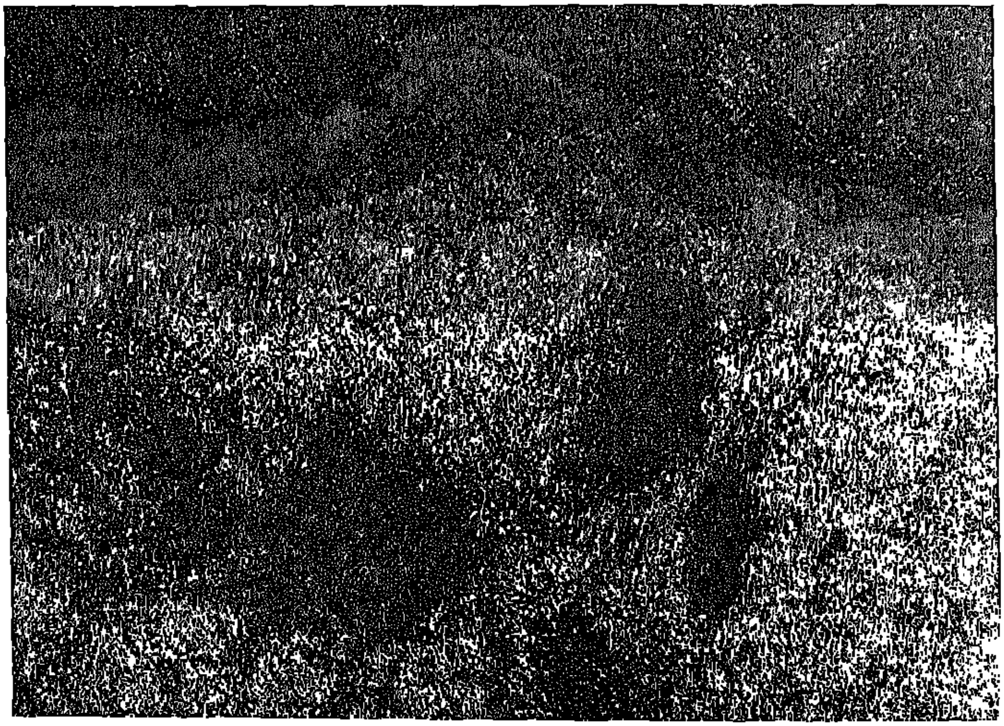


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PLATE LXXV. CONIFEROUS FOREST FROM THE AIR—PETAWAWA SHEET, ONTARIO

3. The type of forest depends upon the temperature either on account of latitude or of altitude.

4. Trees with special characteristics are the outcome of irregular conditions of water supply and temperature.

Resulting from these general conditions emerge two types of forest tree, which are of the greatest importance in an economic study. They are the coniferous and deciduous known more familiarly as soft woods and hard woods. The soft woods, comprising 80 per cent of the world's timber requirements, come mainly from the northern fir forests where few varieties are massed together in great stretches, Plate LXXV. Of the hard woods, 18 per cent come from the temperate regions and the remaining 2 per cent are the result of laborious and painstaking searching and sorting among the thousands of varieties found in the tropical zone.

Soft woods.—Lumbering is naturally more intensive in the coniferous belts among the soft, easily worked but strong timbers of pine, spruce, fir and larch. The great forests stretch from Scandinavia to the Pacific coasts and then again 600 miles in width across North America. In both the new and the old world the industry is concentrated mainly at the coastal extremities, many areas being too remote from markets and others inaccessible.

Lumbering is one of the most picturesque industries of modern times. First of all *cruisers* prospect for *stands* of good quality timber, then a camp site is cleared and the camp built with stores for the necessities of life, roadways in all directions for timber haulage and a main connection, by light railway if necessary, to the nearest river. The lumberjack then gets to work with axe and cross-cut and, after topping by the high rigger, a precarious job 100 ft. or so up on a swaying tree, the trunk is felled, to drop exactly on the spot selected beforehand. After trimming, the logs are hauled by sledge, tractor or cable worked by a donkey engine to the nearest *flume* down which they shoot to the main water where great booms or rafts of logs are gradually worked along to the mills.

The sawmills are situated so that supplies of timber are easily accessible, power is available for machinery, and a suitable outlet is available for export. Thus in British Columbia there are abundant waterfalls for power and the fjords provide numerous harbours; the Baltic countries are similarly well equipped and in eastern Canada numerous small rivers pour into the St. Lawrence.

At the mills the logs are carried by endless cables up slipways to the machines. Here they are worked into rough lengths for use as scaffolding, pit props, telegraph poles or railway sleepers or turned out as finished products for constructional work; e.g., window frames, doors and planks. The lesser timber is crushed in water between great rollers and then pressed into slabs for export as pulp to the makers of paper and artificial silk.

Main sources of supply.—In North America, where half the world's supply of pulp is produced, the main areas of activity are British Columbia and the eastern provinces of Canada and the Pacific states of the U.S.A.

Russia has the largest timber reserves in the world: they lie in a belt between one and two thousand miles wide, but only the more accessible regions can be exploited economically and vast areas in Siberia remain untouched.

The fourth great lumbering country is Sweden. Here the industry is scientifically controlled and the timber is of very high quality, most of it being converted into constructional timbers, doors or window frames for export.

Other important European areas of soft wood production are the Baltic States, the forested mountains of Central Europe and the Landes of France. The latter region was planted with conifers in order to "anchor" the sand which threatened to advance inland, and it now supplies France with soft timber together with a surplus for export, mainly in the form of pit props.

Outside Europe the remaining areas of importance are New Zealand, Australia and South Africa.

Hard woods.—Deciduous forests are the chief source of hard woods. The temperate deciduous forests of Europe and the United States include such trees as the oak, walnut, beech and elm, all of which yield timber capable of withstanding very hard treatment. The greatest producing region at present is that in North America which extends from New York to Alabama and from Louisiana to the lower Great Lakes. The trees include the oak, maple, red gum, chestnut, black walnut, yellow poplar, hickory and beech. Memphis is the greatest hard wood market in the world. In the southern hemisphere, south-western Australia is noted for the karri and jarrah trees, which are very hard and durable and so are used in dock construction, as railway sleepers, and for making wooden blocks for roads.

Tropical forests yield even harder and heavier timber than temperate deciduous forests. Lumbering is exceedingly laborious in these regions; the trees required exist only as single specimens widely separated, the ground is generally swampland and transport difficulties to distant markets all add to the high cost of the exceedingly useful but "luxury" timber.

Typical trees are mahogany, the most important, obtained from Central America, Guiana, West Africa and the West Indies; cedar, which ranks second in commerce, from the West Indies, Central America and Mexico; and teak which comes almost entirely from Burma and Siam. Other valuable woods are ebony from the Congo region, India and Malaya, rosewood from Brazil and satinwood which is a native of India.

World trade.—Timber forms an important item of import in countries where the natural forests have been destroyed to make way for agricultural land and town sites. Great Britain is the land most affected and has to depend on supplies from the chief exporting countries: the U.S.A., Sweden, Canada, Norway and the U.S.S.R. More than three-quarters of the oak used is American and the pit props for the mines are all from Baltic lands or from France. To-day most countries are aware of the grave losses inflicted by the wanton destruction of trees in the past and in Europe, Switzerland, Germany, Sweden, Finland and France restrict all lumbering and every tree cut is systematically replaced by a sapling. Large areas in England have been re-afforested in the last twenty years but many years must pass before any tangible result is obtained.

Wood pulp forms a leading article of world commerce. Nearly 25 million tons are produced annually, nine-tenths of which are used in the paper trade and most of the remainder in the artificial silk industry. Four-fifths of Canadian pulp goes to the U.S.A. to supplement her own supply. Newfoundland and the Baltic lands supply Great Britain, the rest of Europe being mainly self-supporting. Australia, Africa and South America rely largely on imports, but Japan has a surplus and discharges it in the form of articles made of papier-maché and fancy paper.

Paper.—The tremendous amount of newsprint used throughout the world adds enormously to the demands upon wood pulp. Great paper mills are now erected in most countries near the centres of greatest demand such as along the Thames and Forth estuaries in Great Britain. The quality of the paper depends to a great extent upon the method of preparation. If it has been pulped mechanically, the paper is of poor quality and is generally used for newsprint and packing, but if the pulp has been made chemically the paper is of better quality. The fine-surfaced papers are made from the softer varieties of temperate "hardwood" trees such as the poplar. Other materials are also used for paper making. Rags and esparto grass are used for good whites; and for browns,

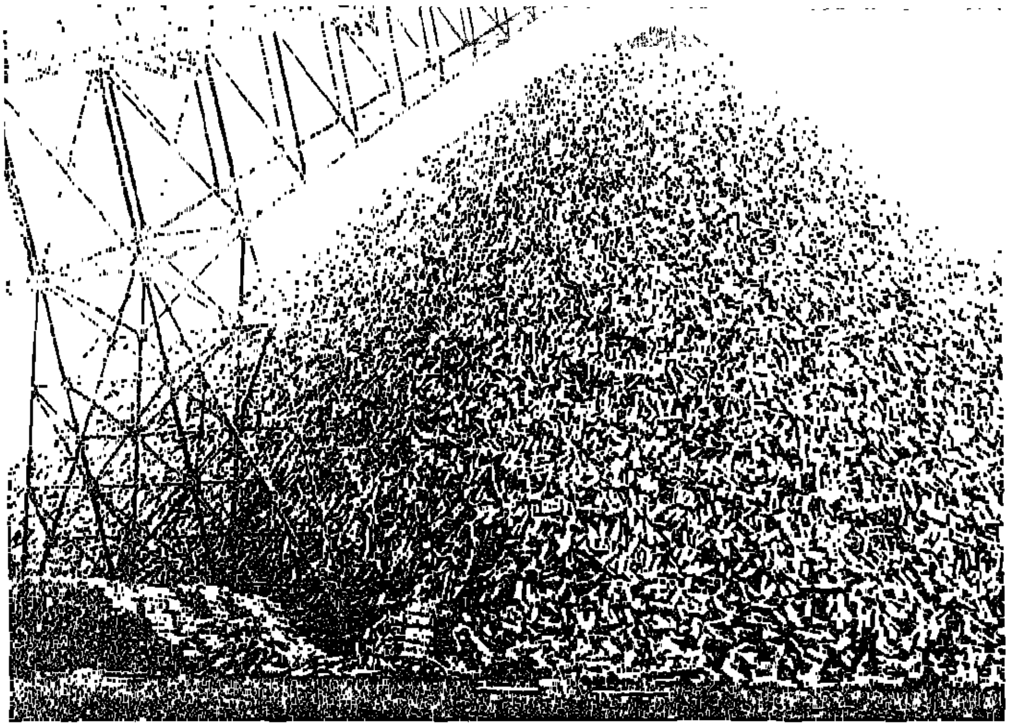

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PLATE LXXVI. PULPWOOD PILE AT FORT FRANCES, ONTARIO

wrappings and boards, hemp, jute, straw, waste paper and bamboo are employed.

Artificial silk.—The production of this material is now over eight times that of pure silk whereas fifteen years ago the weights were equal. In general, the system of manufacture is to reduce chemically to a jelly, wood pulp of a special quality and then to force it through very fine glass tubes giving a hollow filament which is set and treated to give a lustre and rustle almost identical to the natural product. Japan and the U.S.A. share equally the position of the world's foremost producer. In England great strides have been made in the industry, the factories of Essex being prominent amongst the many new industries established on the borders of London.

Other forest products.

Rubber, the dried sap or latex of a number of equatorial trees, provides an outstanding example of the enormous increase in world supplies achieved by scientific cultivation of a natural product. The substance had been known for many years but its habit of changing its consistency with varying temperatures made it of little value and the first waterproof coats of Charles Macintosh in 1823 were very unsatisfactory. Vulcanising, or the process of mixing sulphur with rubber at a high temperature, gave it a permanence under all normal conditions and from that discovery in 1839 great developments have taken place.

Production.—Up to the end of the nineteenth century most of the world's rubber supply came from the Amazon and Congo forests where the trees occurred widely scattered. The rubber was often collected by the wasteful method of cutting down the trees and then collecting the sap. Supplies rapidly diminished and towards the end of the nineteenth century steps were taken by the British to introduce the trees into Ceylon, India and Malaya. Seeds were collected and brought to Kew, whence the young plants were despatched overseas. Planting was an expensive undertaking. Land with equatorial conditions had to be found, the jungle burned and drained, accommodation provided for native labour (Sinhalese in Ceylon and Chinese in Malaya) and European staffs, and constant attention paid for five years to the evergrowing hosts of weeds and creepers until the saplings were strong enough for tapping. Modern plantations are models of skilful farming. Rich, weedless soil, perfectly ordered rows of trees, 150 to the acre, factories, houses, hospital accommodation for tropical diseases, all help to a regular, high-class output with the minimum of waste.

Tapping the trees is the simple process of making a number of light incisions halfway round each trunk and fixing a metal cup in position to catch the sap as it oozes out to cover the wound. A coolie will make his round daily of 200 trees and, after cutting, return to collect the latex in a bucket for transport to the factory tanks. Here, acetic acid is added and this coagulates the latex into masses of white rubber, which are then passed through rolling machines from which it emerges in thin sheets. The strips, when dried, form crèpe rubber which is pale yellow in colour. Sometimes the sheets are dried with smoke and form the dark-coloured sheet rubber.

The wild rubber of the Amazon and Congo forests is now collected by natives in the pay of white traders. "Rubber villages" are built in the forest on high ground out of reach of the floods, and to these the natives bring either the latex or rubber that has been formed by drying the sap in layers on a stick held over a smoky fire. Rubber received in this way is often dirty, but it is of excellent quality and compares favourably with the best plantation product.

Rubber Industry.—The importance of plantation rubber can be realised when it is considered that it provides over 99 per cent of the world's supply of nearly 900 thousand tons. In 1900 only 4 tons of plantation rubber were exported: in 1910 the amount was 10,000 tons as compared with 70,000 tons from the Amazon and Congo. Over 80 per cent of the total rubber produced is used in motor industries, the remainder being absorbed among the textile trades for waterproof fabrics and in the construction of innumerable articles such as flooring, soles for shoes (10 million used annually in England alone), mats and cushions, hose pipes, insulation for electrical goods, surgical equipment and sports' gear. It is noticeable that as the rubber and motor-car industries have developed together, most of the rubber works are situated close to centres of motor-car and electrical equipment manufacture.

World trade.—The chief rubber market is at London although the U.S.A., producing 90 of every 100 cars made in the world, absorbs nearly three times as much as the rest of the world put together. France, Germany, Canada, Italy and Great Britain are the next largest consumers, in that order. Other countries of export other than the producers already mentioned are the Dutch East Indies. Brazil, India, Bolivia and Mexico.

Despite the enormous demand during the last thirty years, production has outrun consumption and output is now restricted by agreement among the growers in order to maintain a price level satisfactory for working.

The controlling position, however, once in the hands of Malaya and Ceylon, is threatened by the recent enormous output of East Indian plantations and the situation tends to be complicated further by the establishment of plantations in West Africa and the Amazon basin.

Various products.—It is impossible to note in detail the great variety of lesser-known products of the forest trees. Besides vast quantities of nuts valuable for their butter or oil content, the bark, sap, and wood of particular types of trees have their own special values. For tanning leather, the bark of the oak, larch, chestnut, mangrove, mimosa, eucalyptus, sumach and the quebracho of South America is invaluable and also that of the Mediterranean oak for cork. Cinnamon is a bark product of an evergreen tree in Ceylon as is quinine from the cinchona, once common in the Andes and now cultivated in the East Indies.

From various woods, dyes are made. Reds are obtained from Brazil wood; fustic, a West Indian wood, gives a yellow dye; chips from the dark red logwood, a native of South America, produce with indigo, a black; and camwood from West Africa yields a deep scarlet.

Lastly, there are the saps and extracts from woods that are used in gums, varnishes and paints. Copal varnish is a well-known product from a hard resin found in Zanzibar, Madagascar and the East African forests. Gum arabic is the dried sap that issues from a species of acacia that is abundant in East and North Africa and especially in the Kordofan district of the Sudan. An inferior type is obtained also in Australia. The fossilised kauri gum of New Zealand is, of course, a familiar commodity and also the turpentine of the pine tree and its by-product known as rosin. Camphor distilled from the wood of a species of laurel grown in Formosa, China and Japan is used in many households and the pith of the sago palm is a common article of diet.

And so the list can go on; the yield of the forests seems inexhaustible, yet amidst all the wealth at man's disposal there is a serious point to consider. What of the future? With lumbering and other forest industries destroying timber four times as fast as it is being replaced, an economy must be effected sooner or later. There is not only the problem of shortage in generations to come, but the denuded and sterile lands in China and the U.S.A. are witnesses of the disastrous erosion that followed man's foolish destruction of the trees that once preserved the soil.

Teaching aids.

Summary.—1. Main types of timber for world supplies. 2. The extent of the soft woods. 3. Conditions necessary for lumbering. 4. Conditions necessary for position of sawmills. 5. Sources of hardwood supplies. 6. Types of tree. 7. Soft-wood products. 8. Reason for cost of hard woods and uses. 9. World supplies of wood and pulp. 10. World users of wood and pulp with reasons. 11. Rubber once a forest industry, now a result of cultivation. 12. Cause of rise in demand and greatest users with reason. 13. Other products of barks, woods and saps. 14. Results of wasteful usage of forest wealth.

Statistics.—Figures in 100,000 tons.

Rubber (exports)		*Wood pulp*	
Brit. Malaya	3·6	U.S.A.	57
Neth. E. Indies	3·2	Canada	45·5
Ceylon	·5	Sweden	34·7
		Germany	25·5
		Finland	21
		Norway	10·5

Questions.—(*a*) *Boys.*—What soft woods and hard woods are used in the woodwork room? *Girls.*—What dress materials are made from wood pulp? (*b*) Why are the great forests of northern Russia unused for lumbering? Give at least two reasons. (*c*) Why does the U.S.A. use so much wood pulp? (Besides her own, 82 per cent of Canada's and 53 per cent of Newfoundland's.) (*d*) To save wood, what other material might be used for pit props and railway sleepers? (*e*) At one time furniture was made completely of valuable hard woods. The common practice to-day is to give the same effect at a much lower cost. How is it done? (*f*) Is it wasteful to make matches of wood or economical? Look up how they are made. (*g*) Name all the parts of a motor car in which rubber is used in one way or another. (*h*) Which is the great world port for native rubber? (*i*) What common use do chemists make of various gums? (*j*) Look round the kitchen and in the larder and make a note of all the things you see that come from the forests.

Map work.—Draw a map of any one of the hardwood or softwood areas of the world. Show the definite limits of the forest region and write notes on the climate, the types of tree, the parts worked and unworked with reasons, and the ports with their economic and geographical advantages.

Research and writing.—Among many subjects for an essay or notes for debate are:—Should the present rate of lumbering be restricted? Methods of economising in the use of wood; Lumbering in the tropical forests; The curious woods of Australia; The use of rubber in everyday life.

LESSON UNIT VIII—WORLD TRADE AND OCEAN TRADE ROUTES

Introduction.—Following upon studies in world production and the movements of certain commodities, the concluding notes in this section of the course will deal briefly with trade movement in general among the nations.

As already pointed out commerce is the process which seeks to equalise the distribution of the world's commodities. In primitive societies man satisfies his wants directly but in more advanced societies where transport is efficient, the roundabout method is adopted whereby man satisfies his wants by first satisfying those of other people. Specialisation in production has become important, and countries as well as individuals carry on only those activities for which they are particularly suited, exchanging their surplus of goods or services for those which they require. Thus England, as a specialist country in manufactured articles, relies very largely on the sale of the products for her food supplies; and Denmark, an agricultural nation, depends on her export trade in order to maintain a high scale of living.

Trade.—The term trade includes all operations which enter into the buying or selling of goods. There are two general divisions: (1) the *internal* trade of any one country, which consists of interchange of commodities by the inhabitants, and (2) the *external* or foreign trade among inhabitants of various countries.

Foreign trade is beneficial in that it distributes widely the gifts of nature, affords each country the opportunity of developing its natural advantages to the full and allows countries to pursue those occupations for which their inhabitants are best fitted. It varies in importance with different nations. Some, such as the U.S.A., are largely self-sufficient, that is, they cover such a well-favoured area that they can supply most of their requirements of food and raw material within their own boundaries. To others, however, foreign trade is absolutely vital if they are to maintain a reasonably high standard of living. Most countries could be self-sufficing if they were prepared to reduce their standard of living by abandoning luxuries and many things which have come to be regarded as essentials. As conditions are at the present time, no country is entirely self-sufficient and hence the importance of foreign trade; it is a means of maintaining a standard of living. There is one necessary factor, however, before the full benefits can be achieved; nations must be friendly. Unfortunately, as seen in recent years, differences of opinion over political and economic problems have caused the erection of trade barriers by various countries, often with unfortunate results.

Imports and exports are the two branches of foreign trade, the goods dealt with consisting of commodities and the mysterious *invisible exports* often referred to in reports by public speakers. The latter consist of services rendered by one country to another which achieve the same result as the actual sale of commodities. For example, British capital invested abroad brings dividends into the country, whilst the services rendered by the British mercantile marine are really invisible exports. Again, tourists visiting this country have to pay for services rendered by railways, hotels, etc., and therefore come under this heading.

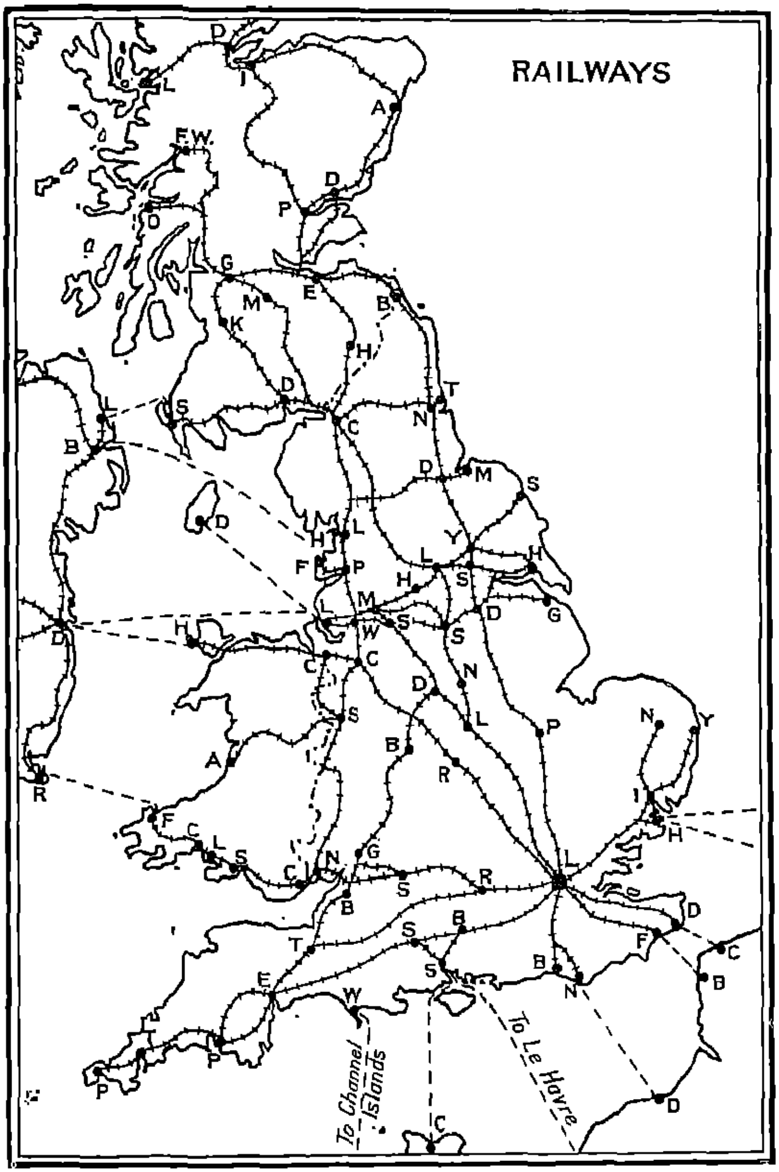


FIG. 20. INTERNAL TRADE CONNECTIONS OF GREAT BRITAIN

Other valuable exports include financial and government services rendered abroad. Thus, bankers are paid for their financial services to trade, whilst the Government maintains various officials abroad, the services of whom are a debt to this country.

The importance of invisible exports in the solvency of a nation, can be estimated by an examination of the latest British trade returns. It is noticed that the value of imports amounts to 867 million pounds, whilst that of exports reaches 518 millions, giving an apparent deficit of 349 million pounds. This would be alarming if it were not remembered that the *balance of trade* is safely maintained by the many valuable services.

Trade routes.—In considering trade routes, the subject of transport is always a leading feature. Goods must be procurable and ready for reception at the termini of the great world highways. Internal transport is, however, a matter peculiar to each nation or region and consequently can be touched upon but briefly in these notes. Among the many communities of the world, the following services are engaged in the complex task of carrying goods from interiors to coasts:—Human (especially in hot lands), pack animal, road vehicles (animal, steam or motor), trains, boats and ships on inland waterways, air services, and pipes and ducts for the conveyance over or underground of oil, gas, electricity and water.

At the ports are the great ships organised for their respective callings—liners for passenger service, tramp ships, the world's most notable carriers, to bear cargoes that will be changed a score of times before the final destination is reached and coastal steamers for the dispersal of goods from, or collection for, their particular *entrepôts.* Air services are becoming each year more important for the speedy carriage of passengers and goods and also for their ability to maintain contact with remote regions. Cost still greatly restricts their activities in the transport of commodities. Other services of vital importance in the organisation of the trade of the modern world are the telegraph, telephone, wireless, satisfactory equipment at the ports of call and suitable stations at points along the routes for refuelling.

Ocean trade routes.—Generally speaking ocean routes follow the shortest line between two points and therefore keep as far as possible to great circles. The main routes are as follows:

1. *The North Atlantic.*—(*a*) Between Canadian and North American ports and ports of western Europe. Eastbound trade is largely in raw materials and foodstuffs, whilst in westbound cargoes, manufactured goods predominate.

(*b*) Between the Gulf of Mexico and western Europe. Here again eastbound cargoes consist largely of raw materials (cotton from U.S.A.) and foodstuffs.

(*c*) A considerable amount of the traffic through the Panama Canal is between the east and west coasts of the United States, although there is also a considerable trade between the countries of western South America and Europe.

(*d*) There are also important routes between the West Indies and North America.

2. *South Atlantic.*—Between Argentina, Uruguay and Brazil in South America and north-west Europe. Here again raw materials and food such as wheat, coffee, meat products, etc., form the eastbound cargoes, whilst manufactured goods figure largely in westbound ones.

3. *The Pacific.*—(*a*) Australia and New Zealand via Fiji or Honolulu to San Francisco or Vancouver.

(*b*) Australia and New Zealand to Panama and so to Europe.

(*c*) Chinese, Japanese and Phillipine ports to San Francisco and Panama via Honolulu.

(*d*) Chinese, Japanese and Phillipine ports to Vancouver.

4. *Routes passing round the Cape of Good Hope.*—Europe to the Cape and on to Durban or Australia.

5. *Routes passing through the Suez Canal.*—(*a*) Europe to north-west India (Bombay, etc.).

(*b*) Europe to East Africa.

(*c*) Europe to Colombo for either Calcutta, Rangoon, the East Indies and the far east, or Australasia.

Teaching aids.

Summary.—1. Commerce, definition. 2. Why commerce is necessary to-day. 3. The benefits are given to the world. 4. The two main branches. 5. Definition of internal trade. Means by which it is carried on. 6. The branches of external trade. 7. Invisible exports, definition. 8. Forms of ocean transport. 9. The five great ocean highways.

Questions.—(*a*) In what particular commodities do the following countries specialise: The Argentine, Malaya, Eire, Canada, New Zealand, Holland? (*b*) Your own village or town specialises in something. What is it, and also what is your own specialist subject? (*c*) What is a commercial traveller? (*d*) Why are some ships called liners and others, tramps? Which of the two would you prefer to work on and why? (*e*) Explain why the world's largest ports are also the world's largest cities. Here are some: London, New York, Chicago, Buenos Aires, Philadelphia, Hankow, Shanghai, Calcutta, Osaka, Rio de Janeiro, Bombay, Sidney. (*f*) Write down the names of all the pack animals you know together with the type of climate in which they work. (*g*) Mention six types of goods that aeroplanes are suitable for carrying. (*h*) What is meant by "crossing the line?" What curious ceremony do new travellers undergo and why? (*i*) At what ports do British ships pick up the following commodities: currants, wood pulp, coir, tin, wine, nitrates, cloves, rubber, fresh (refrigerated) beef, bananas.

Statistics.—The following approximate figures of distances (miles) from Southampton and times taken (days) are useful for exercises in map work:

(*a*) *Suez Canal route.*

Port	*Time*	*Distance*
Gibraltar	4	1,320
Malta	8	2,450
Port Said	12	3,530
Aden	16	5,130
Bombay	21	7,030
Colombo	23	7,500
Calcutta	28	8,980
Singapore	28	9,350
Shanghai	38	11,980
Yokohama	45	12,670
Melbourne	40	12,560
Wellington	46	14,080

(*b*) *Western route*:

	via Panama		*via Cape Horn*	
Port	*Time*	*Distance*	*Time*	*Distance*
Colon	18	5,260		
Cullao	27	6,830	38	11,380
Valparaiso	31	8,310	35	9,900
San Francisco	35	8,900	49	15,500
Honolulu	36	10,700		
Wellington	40	12,880	43	13,660
Sydney	45	14,300	42	13,162 (via Suez)

The direct route across the North Atlantic usually takes about 7 days for fast cargo boats and across the South Atlantic, London to Buenos Aires (6,300 miles), about 20 days. Southampton to Cape Town (6,900 miles) occupies 17 days and continued to Australia to avoid canal charges is 1,000 miles longer. Direct routes across the Pacific; e.g., from Vancouver to Yokohama (5,300 miles), take 18 days and from New Zealand to San Francisco (6,000 miles), 20 days.

Map Work.—Many exercises can be framed involving sketching routes between various countries and noting imports and exports, either pictorially or in writing.

A sketch of the Panama Canal could be made and exercises showing the distance saved between the eastern ports of the U.S.A. and Japan, China and Australasia by taking this route in preference to the old way via the Suez Canal.

Another interesting project is to work out the number of possible ways of travelling round the world by combining travel by rail and steamship. These will involve the great transcontinental lines of Europe, Asia and America and provide many items for research work.

2. THE NATURAL REGIONS OF THE BRITISH ISLES

LESSON UNIT I—GENERAL CONSIDERATIONS

Introduction.—It is generally accepted that a study of the British Isles in one form or another should occupy part of the third year's course. The work has been undertaken in the junior school, mainly from a descriptive aspect, and constant references occur during studies of regions of the world, but there is little doubt that an understanding of the home country is desultory in many children. The complexity of the subject presents, however, a serious difficulty in the limited time at the disposal of many teachers and it is always a great problem to decide what to omit so that the result will be real and not merely superficial. A skeleton course has accordingly been outlined so that the features of importance can be seen at a glance. Special maps that will be found of valuable assistance in the children's private work are included. No attempt has been made to write at length on matter that is common knowledge to geography teachers but lesson units have been preserved as an aid in allotting convenient periods of study.

Position.—Under this heading two main features should be noted: (1) the nearness to and the previous connection with the continent; (2) the position with regard to the world in general.

Topics under (1) include the Ice Age and the formation of the continental shelf with its effect upon tides, harbours and fishing, the racial advantages given by the admixture of peoples, and the value of the sea in later years as a defence and in the promotion of a virile, adventurous people; under (2) the commercial advantages gained by the command of trade routes.

Relief and structure.—The following divisions form natural groups with similar rock formations:

1. The Scottish highlands continued in the northern mountains of Ireland. Note the ancient rocks and two rift valleys, Glenmore and the Minch.
2. The Scottish lowlands. Note the coal measures and the fertile old red sandstone of the north and east edges.
3. The Scottish uplands, the Mourne and the Cumbrian mountains.
4. North and central Wales together with the Wicklow mountains.
5. Devon and Cornwall, south-west Ireland and south Wales.
6. The Pennines.
7. The English plain. Note the limestone ridge running from Portland Bill to the Yorkshire Moors and the three chalk ridges radiating from Salisbury Plain.
8. The central plain of Ireland.

Mineral content.—The annual value of British minerals at the mines is approximately 170 million pounds. Of this, coal (222 million tons) is valued at 145 million pounds. The other principal minerals are:

	Weight	*Value*
Iron ore & ironstone	10,900,000 tons	£2,350,000
Limestone	15,000,000 ,,	£2,950,000
Gravel & sand	14,800,000 ,,	£2,000,000
Clay & shale	23,300,000 ,,	£2,000,000
Granite	9,000,000 ,,	£2,800,000
Sandstone	3,400,000 ,,	£1,400,000
Salt (brine & rock)	2,700,000 ,,	£1,100,000
Oil shale (paraffin)	1,400,000 ,,	£420,000
Chalk	8,200,000 ,,	£560,000

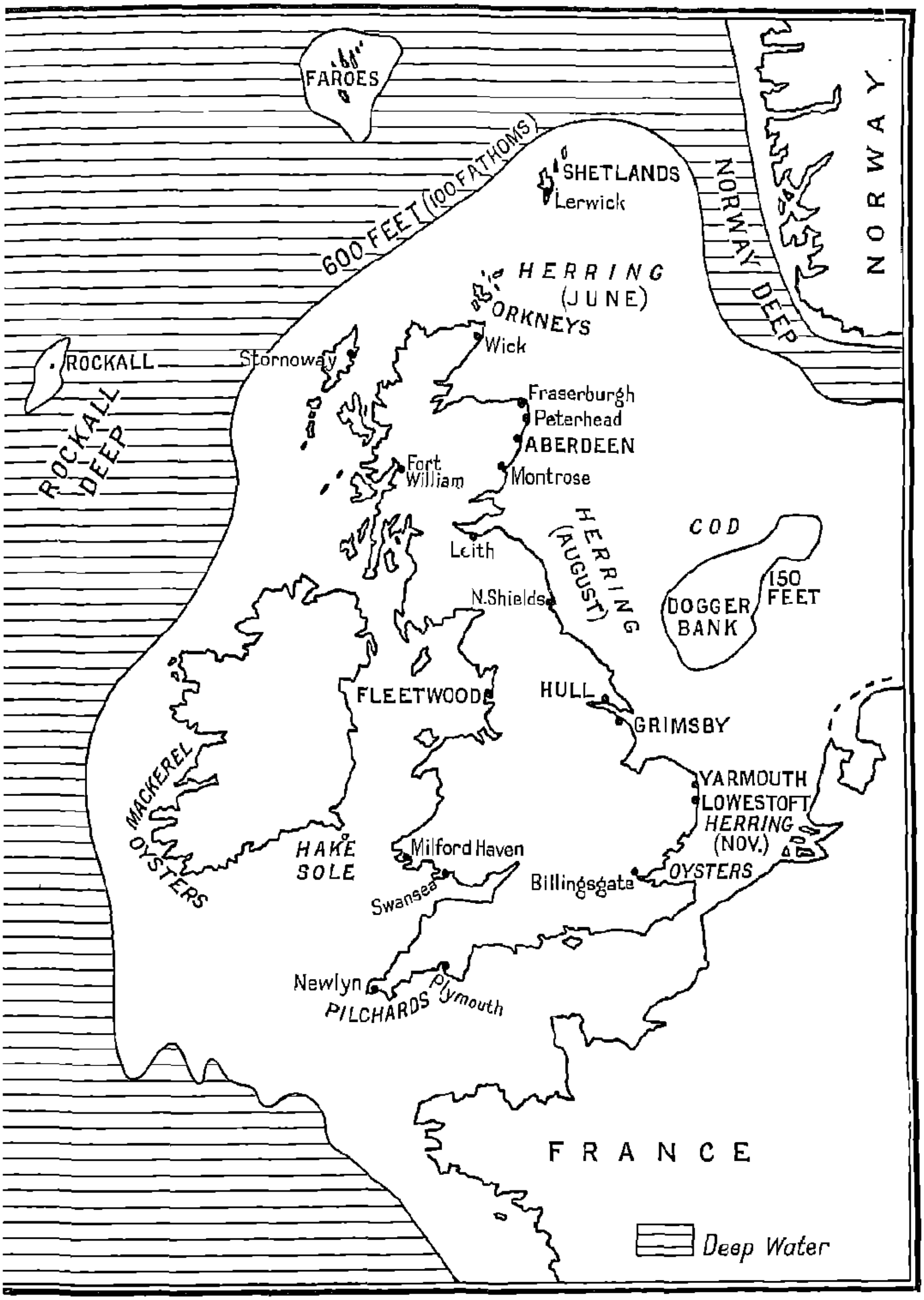


Fig. 21. The British Isles Shewing the Continental Shelf

Non-ferrous metals.—The latest annual returns of pure metals are: lead 39,169 tons; zinc 908 tons; tin 2,050 tons; copper 50 tons; silver 92,848 oz.

Besides the above minerals, large amounts of gypsum, clays, sands and slate are quarried for use in the pottery, glass-making and building industries.

Climate.—The accompanying maps (Fig. 22) clearly indicate the main features for study. Points to note in particular are:

1. The effect of the sea (the warm North Atlantic Drift) upon the winter isotherms.
2. The effect of latitude upon the summer isotherms.
3. The climatic quadrants showing that the north west has the most equable climate, the south west the most extreme, the north east the coldest and the south west the warmest.
4. The prevailing south-west wind bringing most rain to western districts.

It should also be noted that the weather (distinct from climate) is controlled by depressions and anticyclones. Features are:

Depressions.—Low pressure, winds inwards in anti-clockwise direction, rain falls where centre passes. Cyclones, typhoons, etc., are similar disturbances but more intense.

Anticyclones.—High pressure, winds outwards in clockwise direction, absence of cloud, hence hot and dry in summer, cold and dry in winter. These occur most frequently on the east coast.

LESSON UNIT II. NORTHERN ENGLAND (1)

Divisions.—This area, the first major natural region, can be appreciated best by

[*Photo: Aerofilms, Ltd.*

PLATE LXXVII. CUMBRIAN MOUNTAINS—"WAST WATER" AND SCA FELL

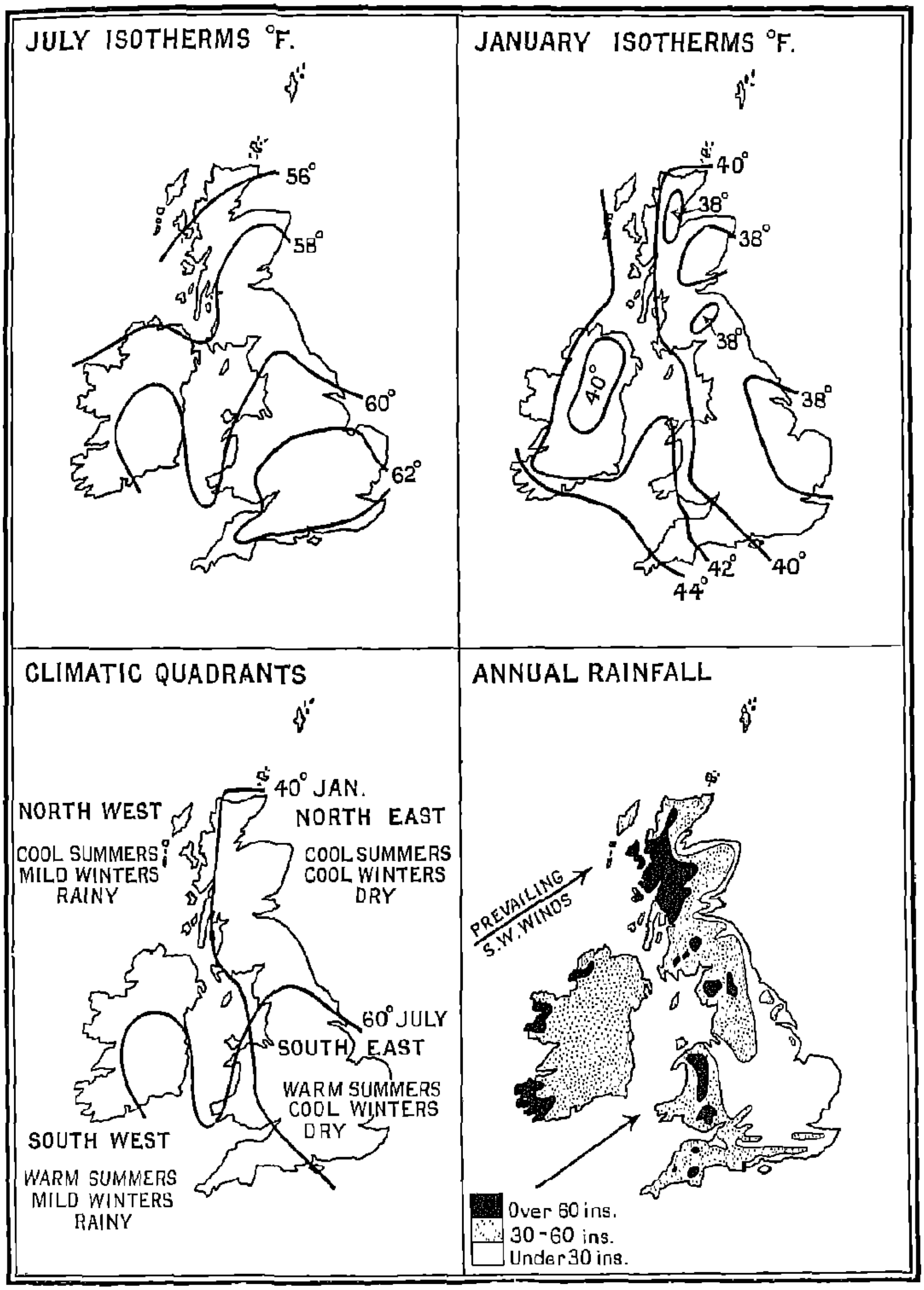


FIG. 22. THE MAIN CLIMATIC FEATURES

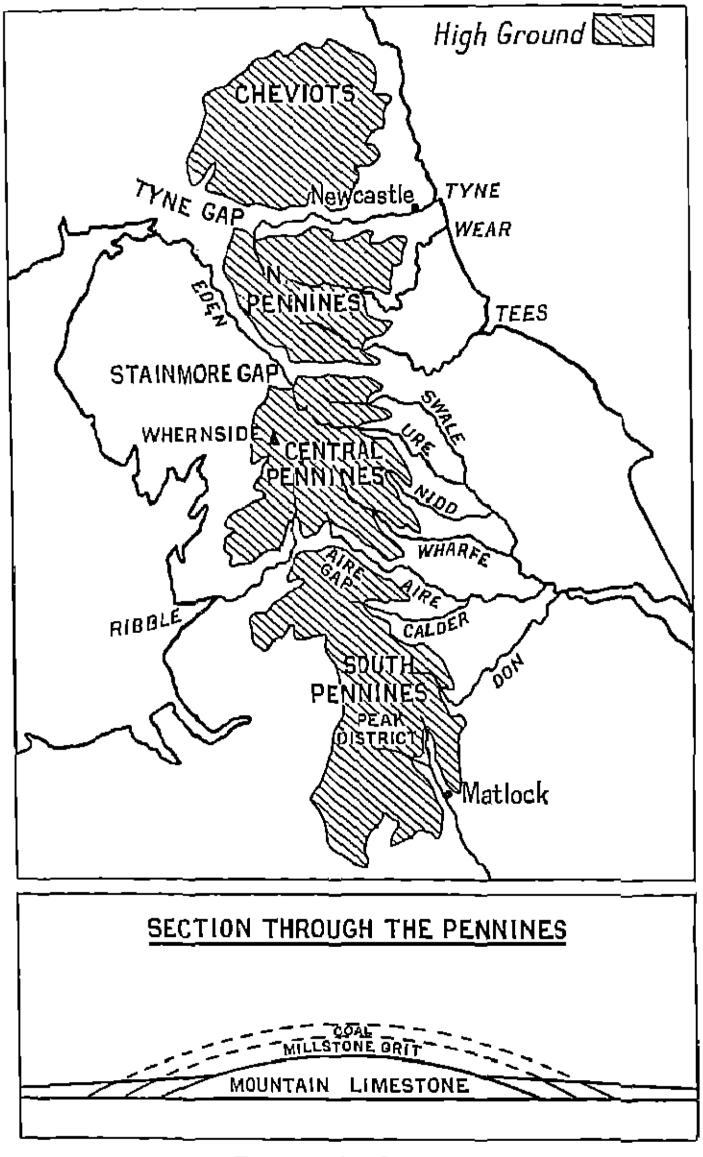


FIG. 23. THE PENNINES

examining separately the five divisions into which it falls:—The Pennines, the Lake District, Northumberland and Durham, Yorkshire, Nottinghamshire and Derbyshire, and Lancashire and Cheshire.

The Pennines.—Using the map (Fig. 23), parts for study are: (1) The division into four blocks by rivers which afford the main routes. (2) The plateau formation with unfertile limestone in the centre, followed by millstone grit (soft-water areas) and coal on the extreme flanks.

Other features are the sheep rearing on high parts (sparse population); deep, fertile eastern valleys for dairying, though greatly taken up by industries, and the curious formation of dissolved limestone (Karst scenery, swallow holes).

The Lake District.—This is distinguished by the high central dome deeply carved by ice action into valleys running spokewise. Lakes where moraines blocked the valleys. Communications difficult, mainly from the north and the west coast.

Occupations.—(1) Pastoral on heights—hardy sheep (Herdwicks). (2) Agriculture in lowlands—oats and root crops. (3) Mining—domestic coal (under sea), haematite at Egremont and Furness, slate. (4) Industry—shipbuilding, engineering (Barrow, Workington). 5. Tourist industry.

Northumberland and Durham.—This carboniferous region of poor soil developed into one of the most intense industrial areas due to coal measures enriched with iron deposits supplemented later by Cleveland ores. Industries associated with three river valleys—Tees, Wear and Tyne:

The Tees.—Smelting and heavy iron and steel goods—Middlesbrough (sea transport). Shipbuilding and engineering — Stockton, Hartlepools, Darlington. Chemicals (salt mines)—Bellingham.

The Wear.—Coal-exporting centre—Sunderland. Shipbuilding—ranks third to Clydesdale and Tyneside.

The Tyne.—Greatest activity, densest population, towns continuous both sides of the river. Newcastle—commercial and industrial centre, note position for inland routes and port. Gateshead, South Shields—engineering, chemicals, glass. Wallsend, Jarrow—shipbuilding, engineering. Tynemouth—ship repairing, notable fishing port.

LESSON UNIT III—NORTHERN ENGLAND (2)

Yorkshire, Nottinghamshire and Derbyshire.—This large area is within the compass of the most productive coalfield of the British Isles and passes easterly into extensive farming districts. The coal deposits are partly visible (near the surface) and partly concealed (below new red sandstone). An important concealed area of more recent growth is around Doncaster, once a notable route centre and market town, now highly industrialised. (Locomotive centre for L.N.E.R.). Specialised industries have arisen from local conditions, most raw materials now being imported.

Industrial areas.—*North Yorkshire.*—This district specialises in woollens (worsteds north west of Halifax and Leeds, woollens mainly south and east). Development from cottage industry due to soft water and power from Aire and Calder streams and then coal. *Leeds* is the great centre; note Aire Gap and canal to Humber. Industries include clothing, engineering, leather, chemicals.

Other main towns:—Bradford—worsteds and market centre. Halifax—worsteds and carpets. Huddersfield—best quality suitings. Batley and Dewsbury—shoddy.

2. *South Yorkshire* is a long-established iron and steel centre due to the existence of rapid streams, ore, limestone, millstone grit and ganister, and, later, coke to replace charcoal in furnaces. Ore now brought from Cleveland, Scunthorpe and Northampton and special grades from Furness district and Sweden. *Sheffield*, on high ground, specialises in high-quality steels and cutlery; towns on low ground—Chesterfield, Rotherham, Barnsley, in heavy iron and steel goods.

3. *Nottingham and Derby.*—This is a mixed area of textiles and engineering developed from market towns with important positions. Nottingham—lace, hosiery, bicycles (Raleigh), chemicals (Boots), tobacco (Players). Derby—tapes and elastic, locomotives (L.M.S.), cars (Rolls-Royce), paint and pottery (note lead mines of Pennines). Mansfield—boots and shoes.

4. *Humber district.*—The great outlet for the whole region and fishing centre. Imports foodstuffs and timber from Baltic and

Scandinavia (most wool goes through London and Liverpool). Hull the main port, Grimsby the world's largest fishing port. Immingham and Goole of lesser importance.

Farming areas.—The map (Fig. 24) clearly shows the definite areas with the main characteristics—the vales of York, Pickering and the low Holderness peninsula, the limestone moors and the chalk wolds. The fertile vale of York is the most important. Mixed farming predominates but rhubarb and root crops such as potatoes and sugar beet are specialities. Sheep rearing is of note in the crop rotation system, especially on the wolds and moors, and cattle breeding on the many acres of pasturage.

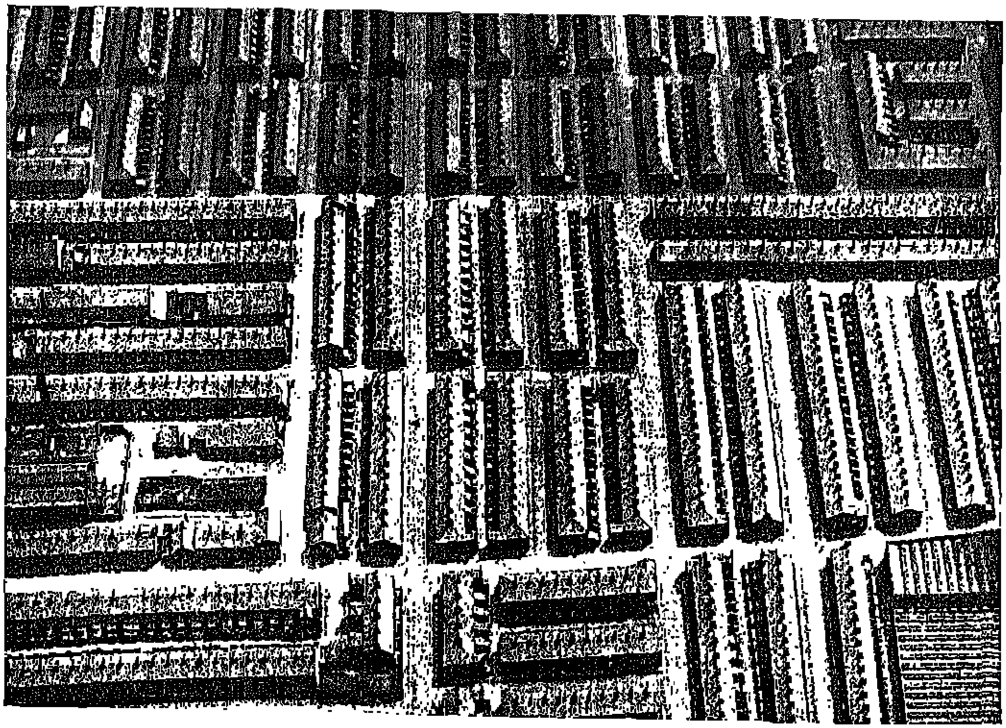
York, the ancient route and now a railway centre, is the most important town (note Rowntree's chocolate factory).

LESSON UNIT IV—NORTHERN ENGLAND (3)

Lancashire and Cheshire.—These counties form a plain of fertile, new red sandstone with a damp, equable climate. A great deal of dairying is carried on and root crops and oats are characteristic crops, all produce being absorbed by the many industrial towns for which the region is most notable.

Industries.

1. *Cotton manufacture.*—The special conditions responsible for the development and the organisation of the industry have been noted already (see page 416). Factories went from the water power supply, Rossendale forest (really unenclosed waste land), to within access of coal mines. To-day,



[*Photo: Aerofilms, Ltd.*

PLATE LXXVII. CONGESTED HOUSING, LANCASHIRE MILL TOWN

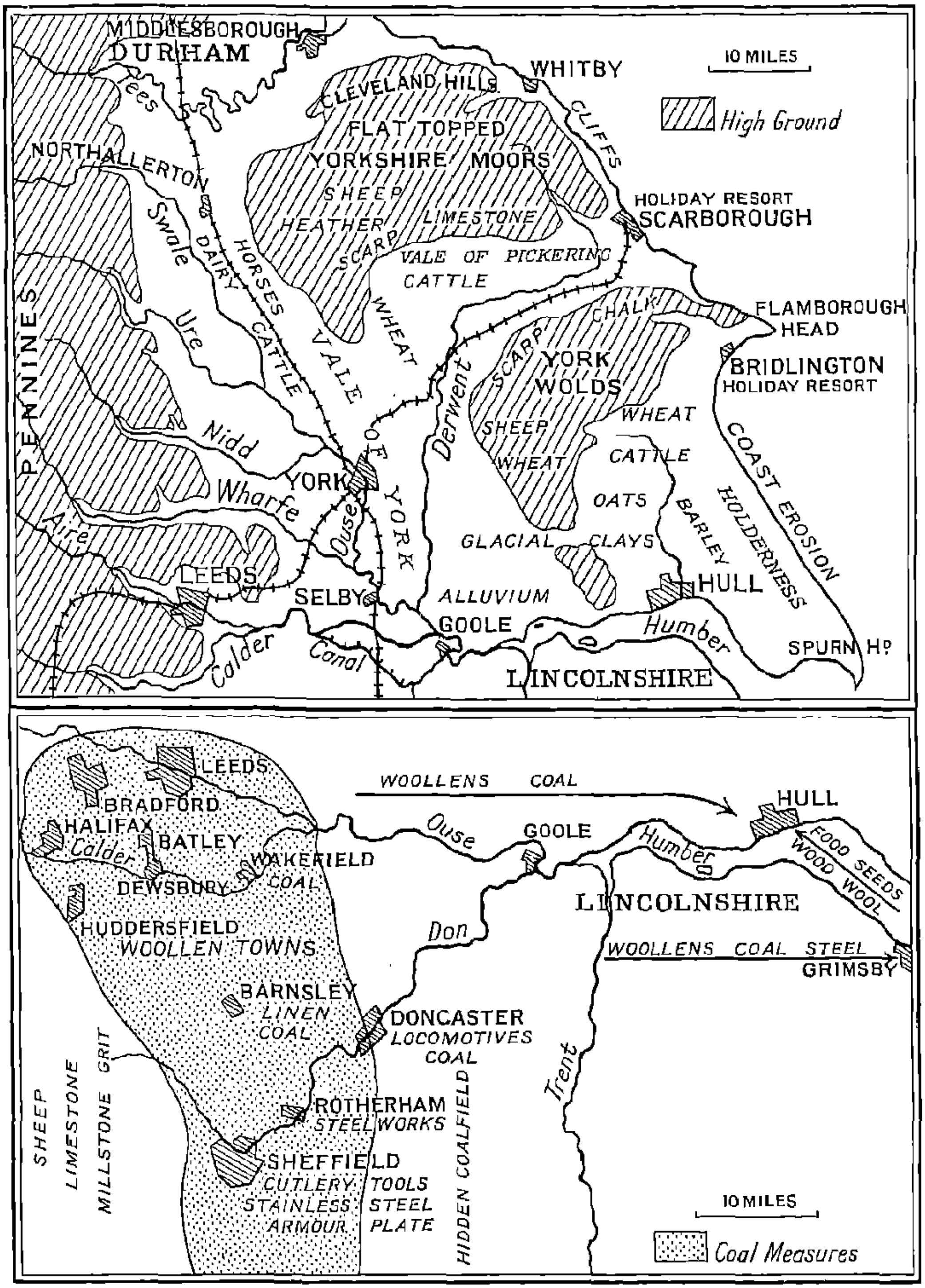


Fig. 24. Yorkshire

spinning towns lie on the southern edge of the forest, weaving towns on the northern edge and the bleaching and finishing processes in the higher parts of the towns where pure, soft water is available.

Spinning towns.—Bolton, Bury, Rochdale, Oldham, Stalybridge, Hyde.

Weaving towns.—Preston (also market town), Blackburn, Accrington, Burnley, Nelson and Colne.

Manchester.—Great commercial city, centre of dense population and focus of routes from Rossendale and Pennines. Canal has made it fourth port of United Kingdom. Imports cotton (U.S.A., India, Egypt), foodstuffs, oil and timber.

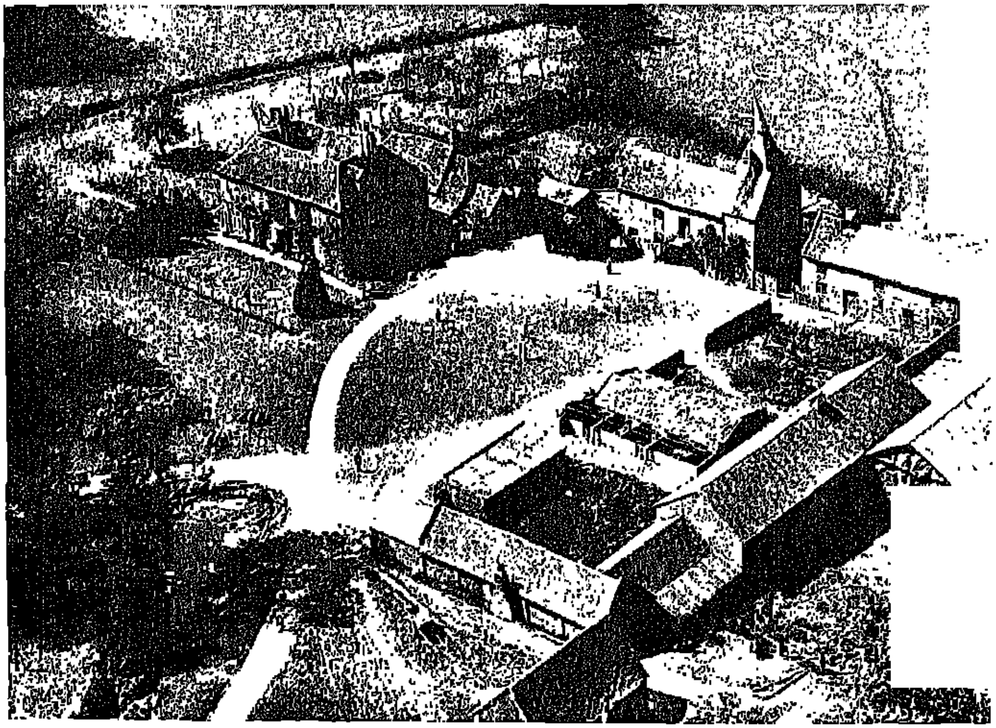
2. *Coal mining.*—Whole supply absorbed by local industries and is supplemented mainly from Yorkshire fields. Wigan is the centre.

3. *Chemicals.*—A large industry, located in lower Mersey region. Based on salt extracted as brine from Cheshire saltfield (Winsford, Sandbach, Northwich, Middlewich). Chief towns, Widnes and Runcorn (export facilities and electricity supplies).

4. *Soap.*—Large factories at Warrington and Port Sunlight. Salt and caustic soda obtained from Cheshire, fats from Australian sheep and vegetable oils (palm, coconut, ground nut) from tropical regions via Liverpool.

5. *Glass.*—St. Helens the centre. Chemicals such as sodium carbonate obtained from the chemical works, limestone from Pennines and pure sand imported through Liverpool.

Liverpool.—With Birkenhead, second greatest port in United Kingdom. Serves whole northern England and the Midlands and has developed large industries associated with imports; e.g., flour milling, sugar



[*Photo: Aerofilms, Lt*

PLATE LXXIX. FARM AT MALVERN, WORCESTERSHIRE refining, tobacco, oil, soap and margarine Imports: cotton, wool, machinery, chemicals, soap.

Factors in development were bottle-necked shape of estuary (speed of tides remove silt), the silting of the Dee, and the triangular trade with West Africa and America in 17th and 18th centuries (slaves exchanged for cotton and tobacco).

LESSON UNIT V.—THE MIDLAND TRIANGLE : THE BRISTOL AVON

The midland triangle.—This region is a lowland of new red sandstone broken by areas of old craggy rock and deep valleys typical of Welsh scenery. Well-known ones are, the Charnwood Forest, the Lickey Hills, the Wrekin and Nuneaton Ridge. Coal is less abundant (6 per cent of the total output), fields occurring on the borders of the Welsh mountains, north Staffordshire and Leicestershire, Warwickshire and south Staffordshire.

Occupations.

1. *Farming.*—Typical English general farming is carried on extensively. Specialist branches are cattle (Shropshire and Hereford) and fruit (vale of Evesham). The latter has mild winters and springs—warm breezes from Bristol Channel. Three-quarters of the farm lands are under grass. Other notable activities are sheep rearing on hill-sides, and growing of hops and apples in Hereford.

2. *Mining.*—Besides the coal, low-grade iron ore is quarried around Northampton, Kettering and Corby. Gypsum (plaster of Paris) is worked from the sandstone rocks.

3. *Manufactures*—(*a*) *Metal work.*—This is centred around Birmingham, the articles being notable for their lightness and skilled craft work. Birmingham makes cars, scientific apparatus, articles of brass, copper, etc., rayon fabrics, rubber and synthetic foods. Other types are tinware, electrical apparatus and motor cycles at Wolverhampton, cycles and cars at Coventry, springs and balances at West Bromwich, chains at Dudley and needles at Redditch.

(*b*) *Pottery.*—This is the product of the north Staffordshire coalfield. (*Note.* Josiah Wedgewood.) Local clay is used for pipes and tiles and kaolin for high quality ware. Kaolin is from Cornwall brought via Mersey and Trent-Mersey canal. All the work is done in the five towns enclosed within Stoke-on-Trent.

(*c*) *Various.*—Boots and shoes at Stafford Leicester, Northampton; brewing at Burton.

The Bristol Avon.—Relics of the famous broadcloth industry of the upper reaches of this river still exist in the blankets of Witney and the cloths of Stroud and Trowbridge.

Bristol forms the centre of most interest with large docks at Avonmouth. Trade mainly with America and West Indies is chiefly in sugar, bananas, tobacco and cocoa. Nearby coalfield provides power for industries associated with imports, e.g., cocoa, soap, tobacco.

LESSON UNIT VI.—THE SOUTH-EASTERN PLAINS

The hills.—The next natural region lies south and east of the midland triangle and is an area of plain crossed by a series of low ranges of hills, Fig. 25. Excepting in some parts of the Lincoln wolds and East Anglian heights, these, both limestone and chalk, have little soil but provide crisp, dry pasturage for a notable sheep industry. Gaps between the ridges have occasioned the main direction of routes and the development of towns.

The clay vale.—1. This is rich arable and pastoral country. Proximity to London has greatly increased dairying (vale of Aylesbury). Oxford (Thames crossing, motor works) and Swindon (engineering centre for G.W.R.) are notable towns.

2. The Fens section of this lowland is a large area of highly fertile land mostly reclaimed from the sea in the seventeenth century by Dutch engineers. Threee-quarters of the land is arable and cereals and roots are the main crops. An interesting system of crop rotation, as shown, is practised.

FIELD A		FIELD B	
Year 1.	Wheat	Year 1.	Roots (sheep)
,, 2.	Roots (sheep)	,, 2.	Barley
,, 3.	Barley	,, 3.	Clover (sheep)
,, 4.	Clover (sheep)	,, 4.	Wheat

FIELD C		FIELD D	
Year 1.	Barley	Year 1.	Clover (sheep)
,, 2.	Clover (sheep)	,, 2.	Wheat
,, 3.	Wheat	,, 3.	Roots (sheep)
,, 4.	Roots (sheep)	,, 4.	Barley

On the lighter soils; e.g., Wisbech and Spalding, fruit growing and market gardening are features.

The towns of the Fen country show the various stages in development.

(*a*) Gravel islands before drainage, e.g., Ely and March.

(*b*) River towns on the boundary between the marshes and the uplands, once seaports; e.g., Cambridge, Peterborough (brick making) and Stamford.

(*c*) Towns down the rivers replacing the old ports; e.g., King's Lynn, Wisbech, Boston, Spalding. Silting has reduced their importance.

East Anglia.—This is a great agricultural area—wheat, barley and roots. Sheep are reared on chalk areas. (Note fine churches, a mark of the old woollen industry.) Population is evenly distributed among villages and market towns; e.g., Norwich (agricultural implements, boots and shoes, mustard and starch industries). Notable ports for the herring fishery are Yarmouth and Lowestoft. Harwich has connections with Holland and Belgium.

The London Basin.—For this region reference should be made to Figs. 26 and 27. Notable physical features and their effects are: (1) The clay soil overlaid in places by sand. This has promoted dairying, artesian wells, extension of London suburbs on sand areas, easy construction of underground railways and tunnels. (2) The partially drowned area in the east causing tributary streams to become separate rivers; e.g., Crouch, Chelmer, Colne. (3) Gaps in the chalk hills made by Cotswold rivers now captured by main tributaries; e.g., Thame. These have been important in focusing routes on London and developing towns. Examples are in the north, Stevenage, Dunstable, Luton, Wendover, Goring; in the south, Croydon, Dorking, Guildford, Basingstoke and Medway and Kennet valleys.

London.—Notable facts connected with the world's greatest port, market and financial centre are:

1. *Port.*—Docks extend one mile from London Bridge to Tilbury, 26 miles down river, assisted by wharves, warehouses and a fleet of lighters for unloading ships in mid-

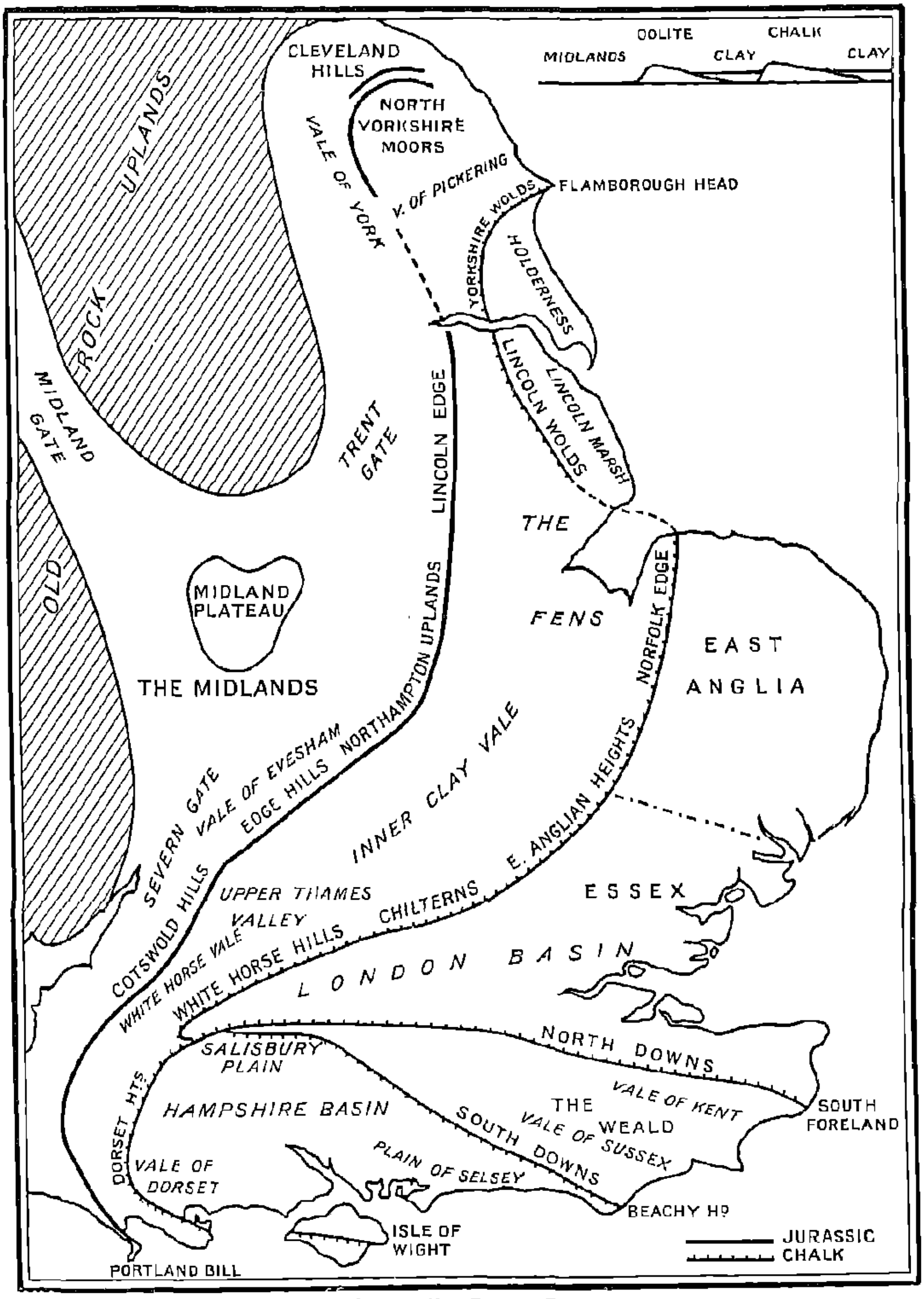


FIG. 25. THE ENGLISH PLAIN

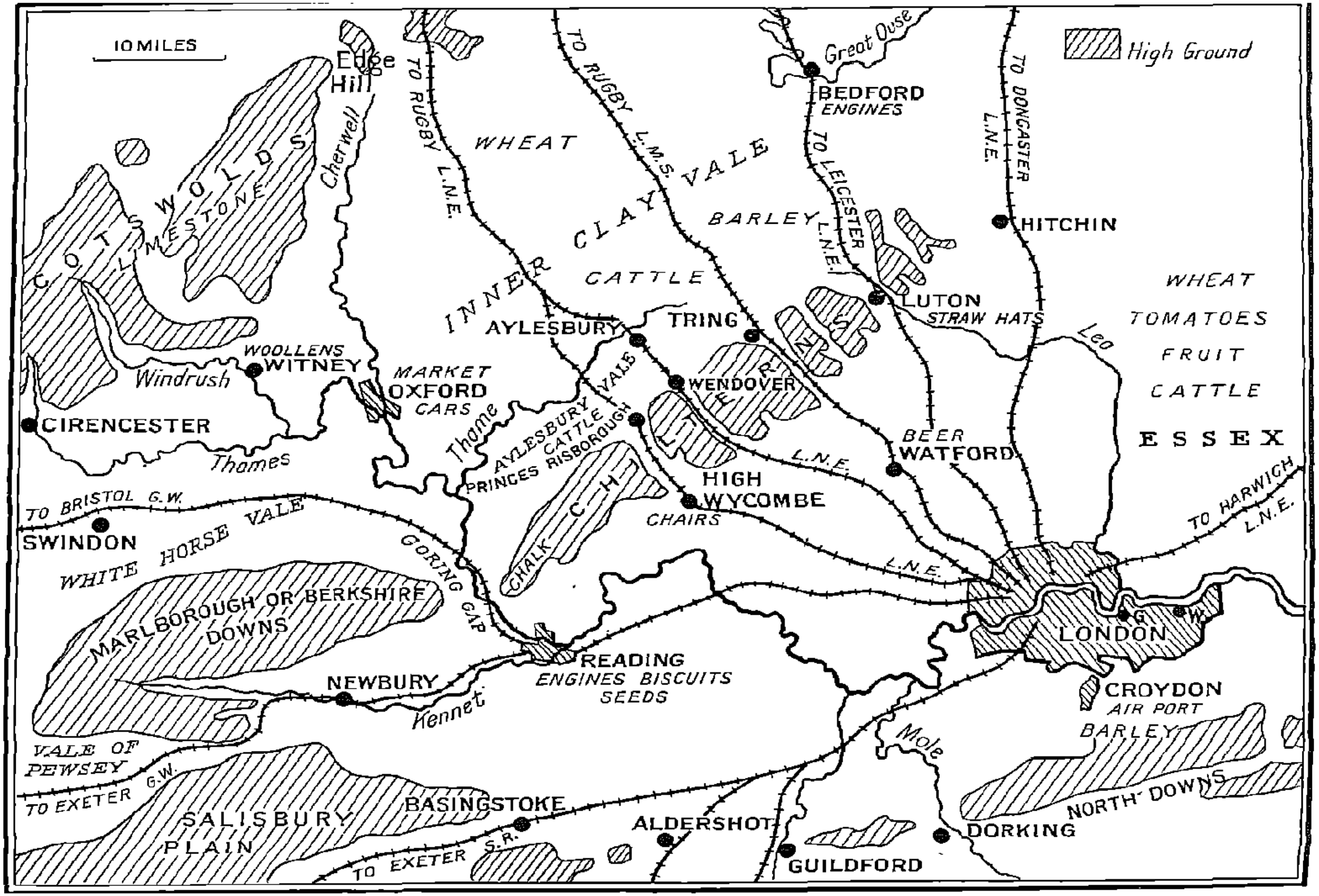


Fig. 26. The Thames Basin

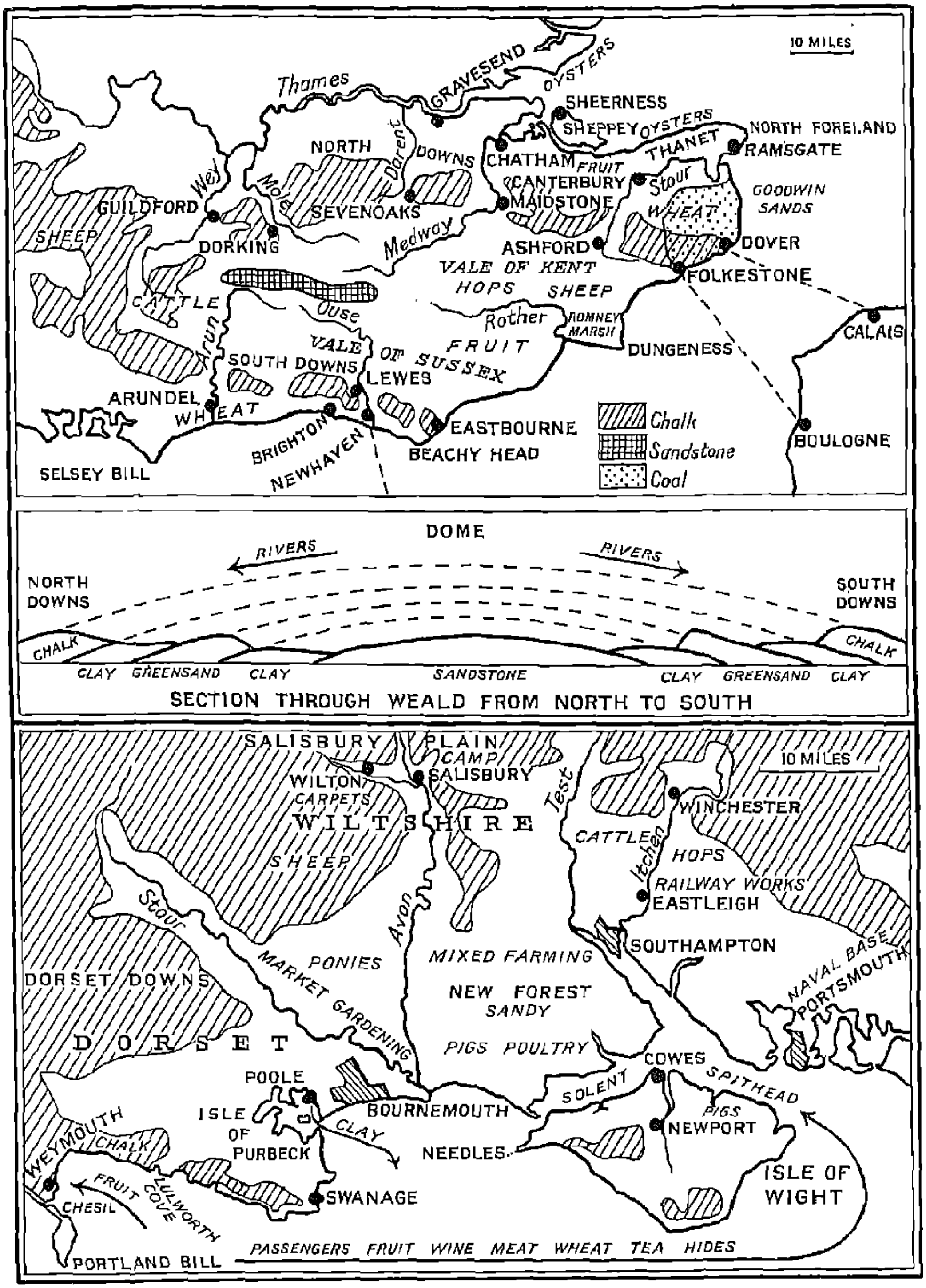


FIG. 27. THE WEALD AND THE HAMPSHIRE BASIN

stream. Four main types: (*a*) *For luxuries* (spices, gems, ivory, wine, wool), St. Katherine's, London; (*b*) *for semi-luxuries* (sugar, tobacco, carpets) West India, East India; (*c*) *for bulky goods* (timber, grain, fruit, meat) Surrey Commercial, Millwall, Royal Victoria, Royal Albert, George V; (*d*) *other traffic* (machinery, passengers) Tilbury.

2. *Markets*.—The following are best known:—Smithfield (meat, poultry); Leadenhall (poultry, game); Baltic (grain, oils); Mark Lane (grain, pulses); Mincing Lane (tea, spices); Billingsgate (fish); Hatton Gardens (diamonds); Covent Garden, Spitalfields (fruit, vegetables, etc.); Wool Exchange (wool).

3. *Railways*.—Termini of all trunk routes and nearly 650 underground stations. L.N.E.R. (Liverpool Street, King's Cross, Marylebone); L.M.S.R. (St. Pancras, Euston); G.W.R. (Paddington); S.R. (Waterloo, Victoria, Charing Cross).

4. *Industries*.—Now based on abundant electric supply (grid system) and raw materials at hand. Enormous variety:—Engineering, scientific apparatus, motor cars, clothing, rubber, soap, furniture, chemicals, paper, leather. Those continually extending into the surrounding counties include rayon fabrics, foods, photographic and wireless apparatus and oils.

Generally speaking, the factories lie east of the city and in a ring on the outskirts; in the centre are the markets and establishments of the great printing and publishing houses and in the west the homes of the leading lawyers, doctors and architects.

The Weald.—The formation of this area consisting of Sussex, Surrey and Kent can be seen in Fig. 27. Gaps formed in the regions by the cutting back of rivers are noteworthy. Mixed farming, market gardening to supply the London market and sheep rearing are prominent occupations. A feature is the possible revival of smelting owing to the known existence of iron in the vicinity of the Kent coalfield. The towns are of four types:

1. *Gap towns*.—Canterbury, Maidstone, Dorking, Guildford, Lewes—markets and route centres.

2. *Residential centres*.—Tunbridge Wells, Crowborough, Sevenoaks—near to London, fine scenery.

3. *Packet stations*.—Express connections with London and the Continent, Dover to Calais and Ostend, Newhaven to Dieppe, Folkestone to Boulogne.

4. *Holiday resorts*.—Brighton, Eastbourne, Hastings, Margate.

The Hampshire Basin.—This is another agricultural region with a warm, sunny climate suitable for dairying, fruit growing and market gardening. The towns are either of the inland market type; e.g., Winchester, Salisbury, Dorchester, or Seaside: some of the latter are ports as Southampton, Portsmouth, Weymouth; and others holiday resorts, as Bournemouth.

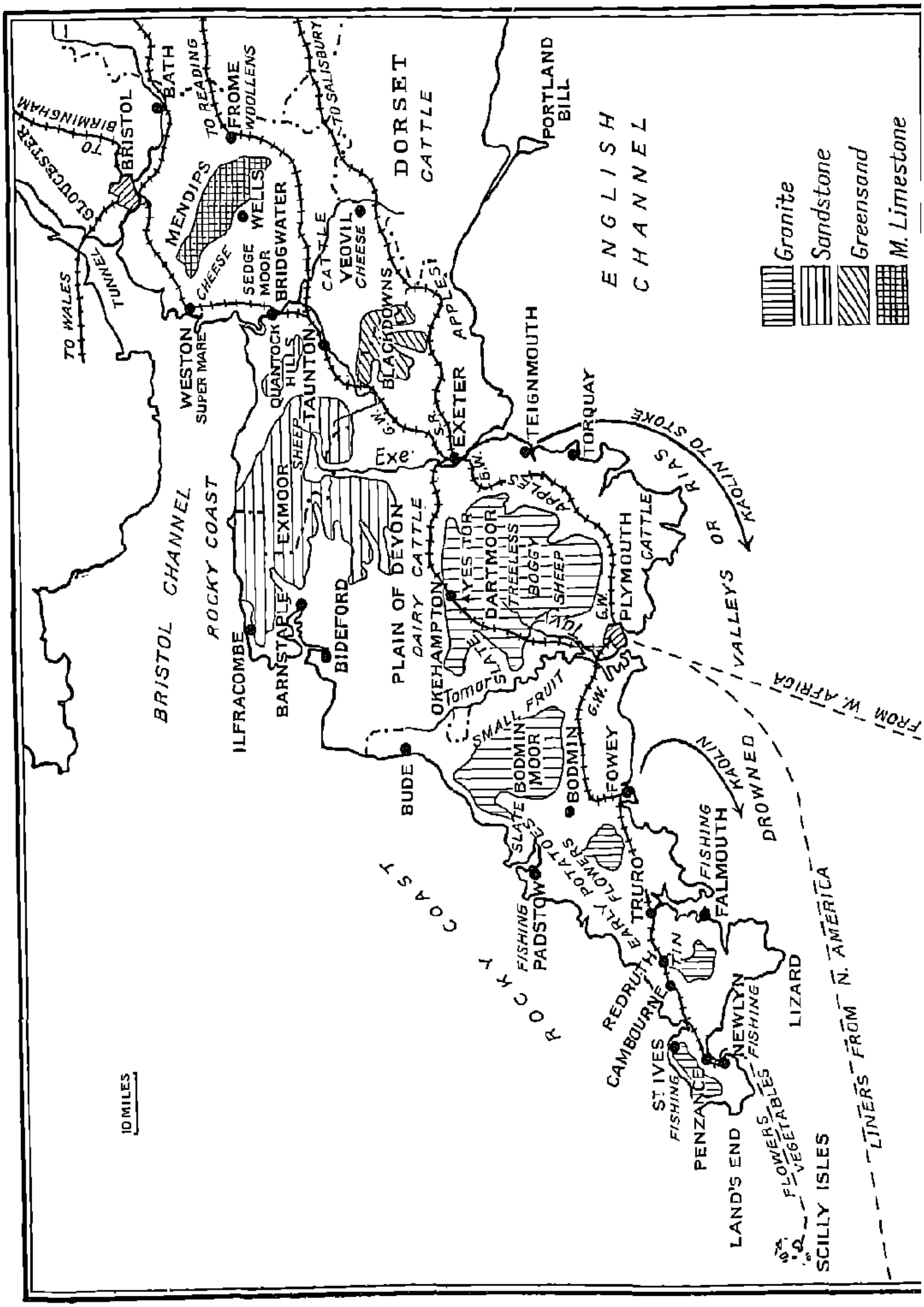
Southampton is the first passenger port of England with advantages of route terminus, double water front, sheltered position and continuous high water.

Portsmouth is a very important naval station with great dockyards and engineering shops.

LESSON UNIT VII.—SOUTH-WEST ENGLAND

The rock formations, shown clearly on the map (Fig. 28) are interesting in this mild, equable and damp peninsula. They give rise to the rugged coasts with many small but excellent harbours (rias), fertile lowland soils—with rich pasturage and bleak granite moorlands (Dartmoor, Bodmin, Land's End).

Occupations.—Many varieties of fish are taken in the semi-warm waters but the industry, mainly herring and pilchard (St. Ives, Brixham) have no great volume (lack of definite grounds and nearby markets). Farming of early vegetables, fruit and flowers is very important and dairying


BRISTOL
BATH
TO BIRMINGHAM
GLOUCESTER
TO READING
FROME
WOOLLENS
TO SALISBURY
DORSET
CATTLE
PORTLAND BILL
ENGLISH CHANNEL
MENDIPS
WELLS
CHEESE
SEDGE MOOR
BRIDGWATER
CATTLE
YEOVIL
CHEESE
TO WALES
TUNNEL
WESTON SUPER MARE
QUANTOCK HILLS
TAUNTON
BLACKDOWNS
APPLES
G.W.
S.R.
EXETER
Exe
TEIGNMOUTH
TORQUAY
KAOLIN TO STOKE
RIAS
OR
VALLEYS
DROWNED
SHEEP
EXMOOR
BRISTOL CHANNEL
ROCKY COAST
PLAIN OF DEVON
DAIRY CATTLE
CATTLE
YES TOR
DARTMOOR
TREELESS
BOGGY
SHEEP
APPLES
G.W.
PLYMOUTH
CATTLE
FROM W. AFRICA
ILFRACOMBE
BARNSTAPLE
BIDEFORD
OKEHAMPTON
SLATE
Tamar
Tavy
SMALL FRUIT
BUDE
BODMIN MOOR
BODMIN
FOWEY
KAOLIN
SLATE
POTATOES
EARLY FLOWERS
TRURO
FISHING
FALMOUTH
PADSTOW
FISHING
ROCKY COAST
TIN
REDRUTH
CAMBOURNE
LIZARD
ST. IVES
FISHING
NEWLYN
FISHING
PENZANCE
FLOWERS
VEGETABLES
LAND'S END
SCILLY ISLES
LINERS FROM N. AMERICA
10 MILES
Granite
Sandstone
Greensand
M. Limestone

permits a considerable export of butter and cheese in the absence of milk markets. Kaolin (decayed feldspar from granite) is now the outstanding mineral and is exported for use in pottery, for making "size," for cotton yarns and for "surfacing" paper. The landscape, quaint fishing villages and mild climate attract thousands of tourists. Three main lines cater for the traffic (Fig. 28) passing through market towns of Yeovil, Taunton and Exeter and meeting at *Plymouth*, an important port of call for liners with passengers and mails and dockyards at Devonport.

LESSON UNIT VIII—WALES

North and central Wales.—The northern section of this highly mountainous country is mainly notable for its remarkable scenery, which attracts thousands of tourists to such seaside resorts as Llandudno, Rhyl and Colwyn Bay, and its industries of (1) slate quarrying (Llanberis, Festiniog and Bethesda) and granite near the coast; (2) coal mining (Flint, Wrexham the centre) responsible for the smelting industries of Deeside.

Central Wales, thinly populated, is sheep country with fruit farming on the eastern edges.

South Wales is a great trough of carboniferous rocks producing the best anthracite and steam coal in the west and bituminous coal in the east. Many shafts are horizontal in the outcropping coal and small mining villages cluster in the numerous river valleys. There is a large export trade, return cargoes providing many industries.

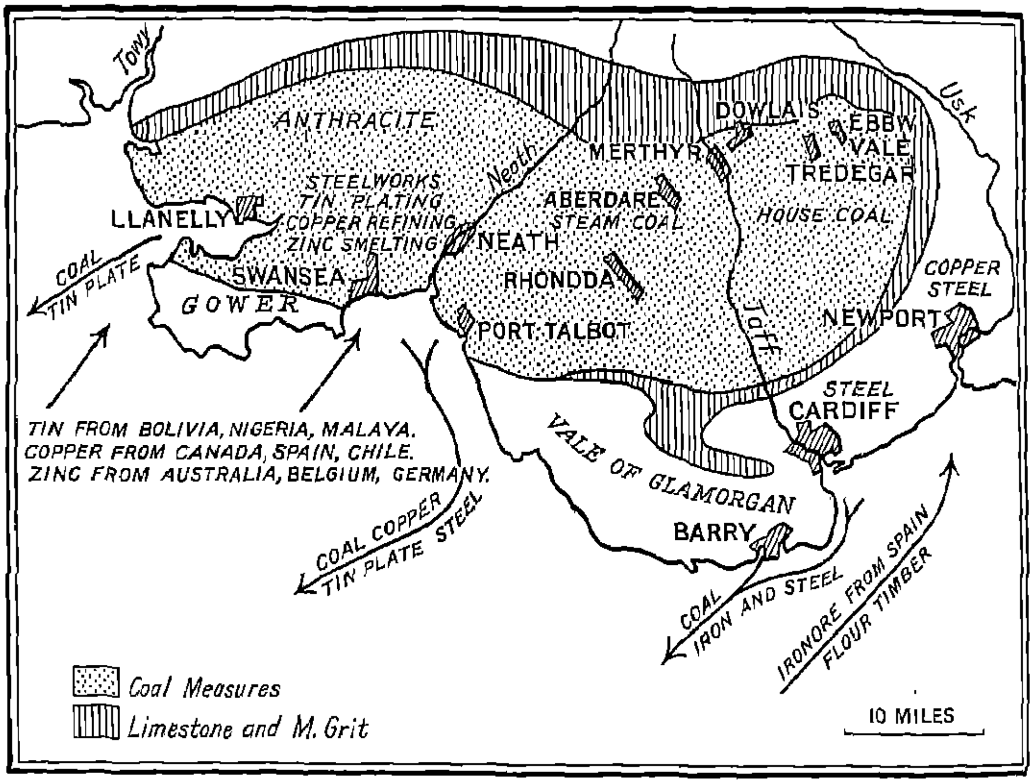


Fig. 29. The South Wales Coalfield

Occupations.—Fig. 29 shows the present positions of the industries, the centre having moved to coastal ports away from Merthyr, Dowlais and Ebbw Vale, with the exhaustion of the local iron deposits.

The plain of Gwent, along the south coast, is a mixed farming area and provides the chief G.W.R. route from southern England to Ireland via Fishguard.

Milford Haven is a notable fishing port with an excellent harbour.

LESSON UNIT IX—SCOTLAND

The southern uplands.—This ancient, dissected plateau forms the first of three definite natural regions and is mainly notable for the highly specialised sheep and woollen industry on the eastern slopes and Tweed valley, an important dairying area in the west and the five main routes from England, one along the east coast and four radiating from Carlisle, Fig. 30.

The woollen industry developed from the sheep, soft water, water power and skill of the inhabitants. Lack of coal handicapped large-scale production but the high quality of the "tweeds" still preserves a large demand from the factories of Galashiels, Peebles, Selkirk and Hawick.

Arable farming, mainly oats, is an occupation along the east coast.

The central plain.—This rift valley (Figs. 30 and 32) is the largest area of fertile lowland in the country and supports three-quarters of the total population. The line of hills pierced by the chief rivers are volcanic and five coalfields, Ayr, Lanark, Clackmannan, Fife and Midlothian, form the basis of intense industrial activity.

Farming in the east is arable, producing oats and roots with some barley and wheat. The protected areas of the Carse of Gowrie and Strathmore are notable for fruit crops and the permanent pasture of the wetter western lands for dairying.

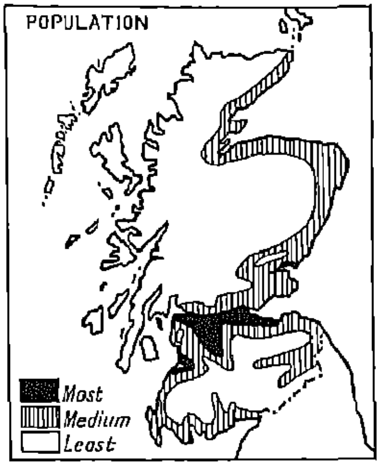


FIG. 31

Industries.

Iron and steel, associated originally with the "blackband" ore and the "splint" coal of the Lanark field. Iron smelting is carried on at Aidrie, Wishaw, Motherwell, Coatbridge, Falkirk (Lanark) and Irvine (Ayr). Shipbuilding is centred along Clydebank, Dumbarton, Port Glasgow and Greenock (the greatest area in the world) and engineering is a general feature of western towns.

2. *Cotton spinning.*—The Paisley area (thread) has all the advantages of Lancashire but the importance of iron and steel repressed any impetus to large expansion.

3. *Other textiles.*—Linen is important at Dundee and Dunfermline, and canvas and sacking (from Indian jute) at Dundee, (fishing industry). The jute output has been seriously affected recently by the new factories established in Calcutta. Linoleum is notable at Kirkcaldy (cork from the Mediterranean, linseed oil and jute from India).

4. *Jam* is a well-known industry of Dundee and Paisley in the fruit area. Oranges, once a deck cargo from Spain, gave rise to an additional enterprise, marmalade.

Edinburgh is the cultural capital of Scotland, the centre of three main English routes and equipped with ports in Leith and Granton (fishing). Industries are connected

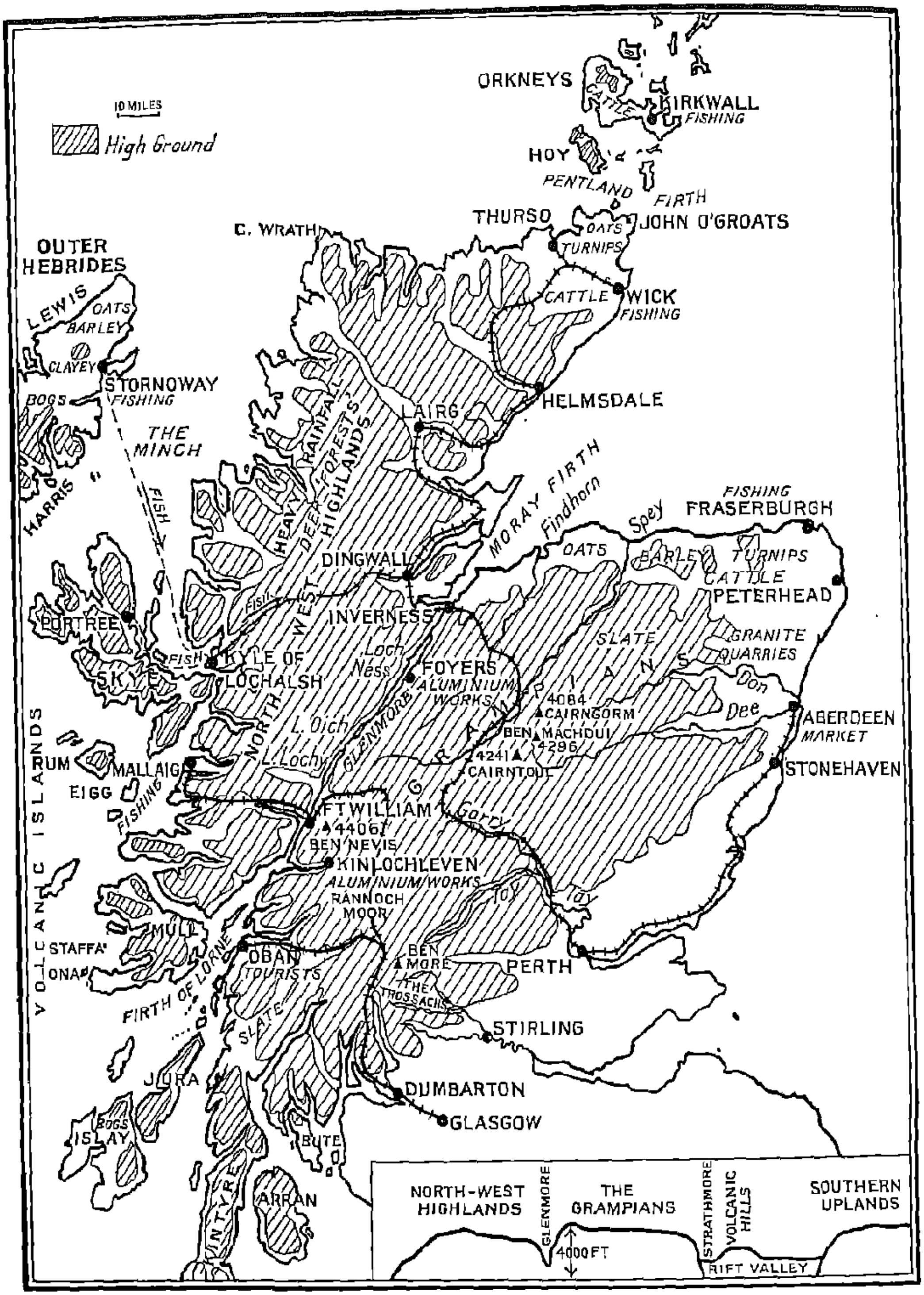


FIG. 30. SCOTLAND

with paper, printing and brewing and imports include esparto grass, wood pulp and pit props.

Glasgow is the largest Scottish city and greatest port, trading largely with America and the West Indies in tobacco, sugar and cotton and exporting the manufactured goods of the surrounding district.

The highlands.—Ancient, heavily glaciated mountains, valley lakes, thin soil, moist climate and bad communications are all factors in the sparse settlement of this rugged and picturesque region. Rift valleys, Glenmore, dividing the mainland, and the Minch, separating the Hebrides, are notable features and also the numerous fjords and lochs of the western coast.

Farming (the primitive croft system of the glens) and fishing are the chief occupations. Oats, roots and hay are produced and sheep provide homespun cloth, the Harris tweeds (Hebrides) being famous. The tourist industry is important in accessible villages (the Trosaachs) but beyond Fort William and Inverness (route centres and market towns) communities of any size are rare.

The development of hydro-electricity is, however, offering new possibilities to the highlands and stations are established at Loch Foyers, Kinlockleven, where aluminium is extracted, and also at Fort William and Loch Rannoch.

The north-east coast is quite different from the interior. The fertile sandstone plain is drier and more extreme but oats and root crops are widely grown and the famous cattle of Aberdeenshire are raised.

Aberdeen is a prosperous town notable for deep fishing, ship-building (trawlers) and paper industries. Fraserburgh and Peterhead are also fishing ports.

LESSON UNIT X. NORTHERN IRELAND AND EIRE

Northern Ireland.—The physical structure of this region gives many evidences of past connection with Scotland; e.g., the hilly region of County Down and Armagh (southern uplands), the northern rift valley containing Lough Neagh, the north-west highlands of Donegal, Connemara and Sperrin (Scottish highlands). Antrim is a basalt plateau, the rock on decomposing giving bauxite from which alumina is prepared at Larne for export to Scotland.

Occupations—1. *Farming.*—About one-seventh of the land is arable. Flax is the commercial crop (valleys of Lagan, Bann, Foyle) but oats, barley and potatoes are largely grown. Cattle (store and dairy), pigs, poultry and eggs are widespread.

2. *Industries.*—Great industrial activity is centred about Belfast (power from coal of Ayr and Cumberland). Development came from the local flax, suitable water for retting and damp air for spinning. To-day, one-third of the world's linen output is produced, flax being imported from Latvia, Russia and Belgium and yarn exported to U.S.A., Canada, India and China. Towns engaged other than Belfast are Londonderry (shirts and collars), Lisburn (thread), Lurgan and Larne.

Belfast, as terminus of routes, conducts most foreign trade. Industries are ship-building, marine engines, distilling, rope and tobacco. Other regular connections with Scotland and England are ports of Larne and Coleraine.

Eire, a self-governing dominion is essentially a farming area. Only 10 per cent of the land is arable owing to mild, wet climate and bad drainage. The drained bogs supply peat for fuel and cattle bedding. Dairying and pig breeding are outstanding occupations; co-operative creameries utilise supplies of milk for butter and condensed milk (Cork and Limerick), returning the skim milk for pig fattening.

Natural regions—1. *North-west.*—This is a poor, mountainous area with a fjord coast and scanty fishing population. Sligo and Galway are good ports but hinterland gives little opportunity for large trade.

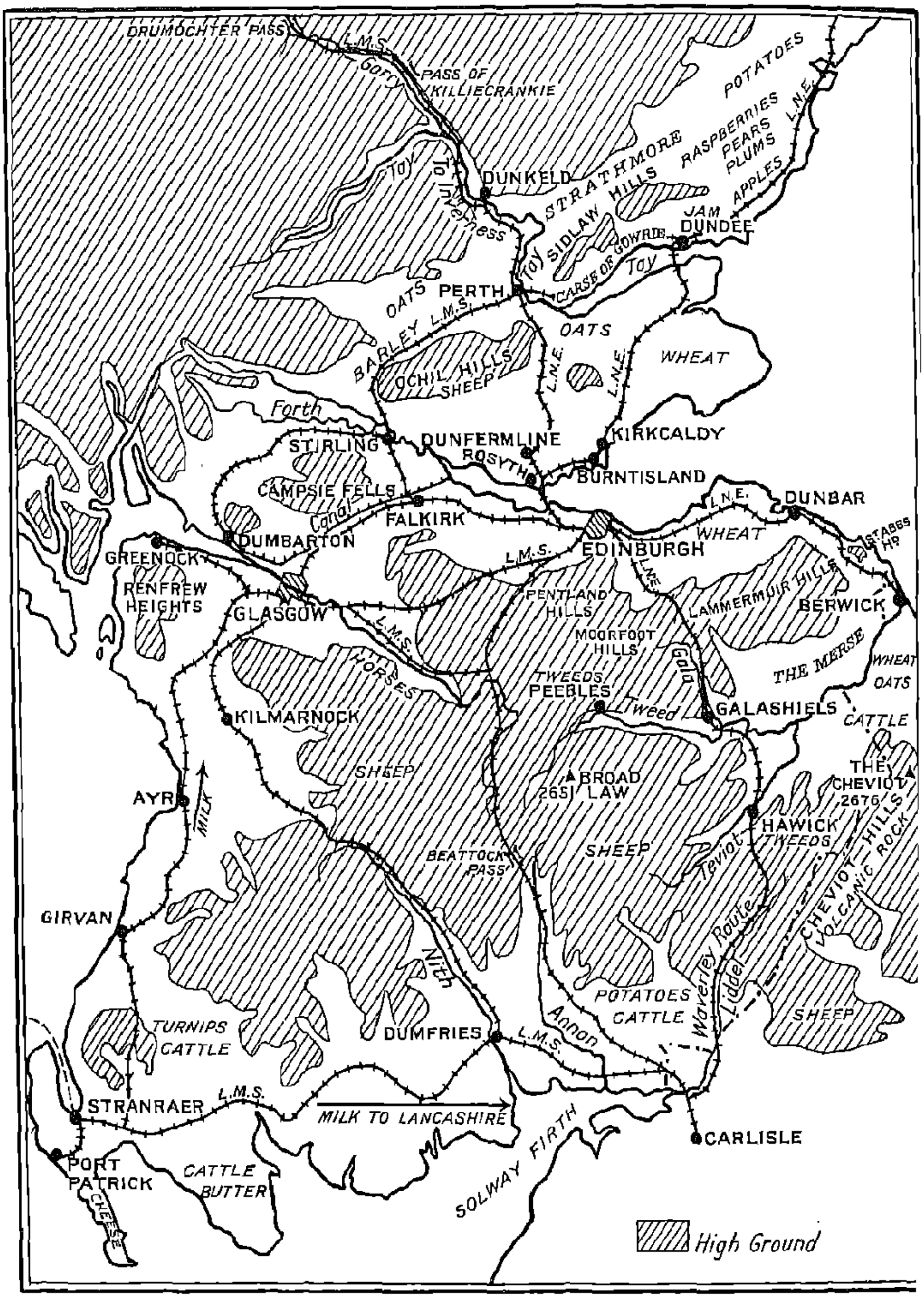


FIG. 32. CENTRAL LOWLANDS AND SOUTHERN UPLANDS

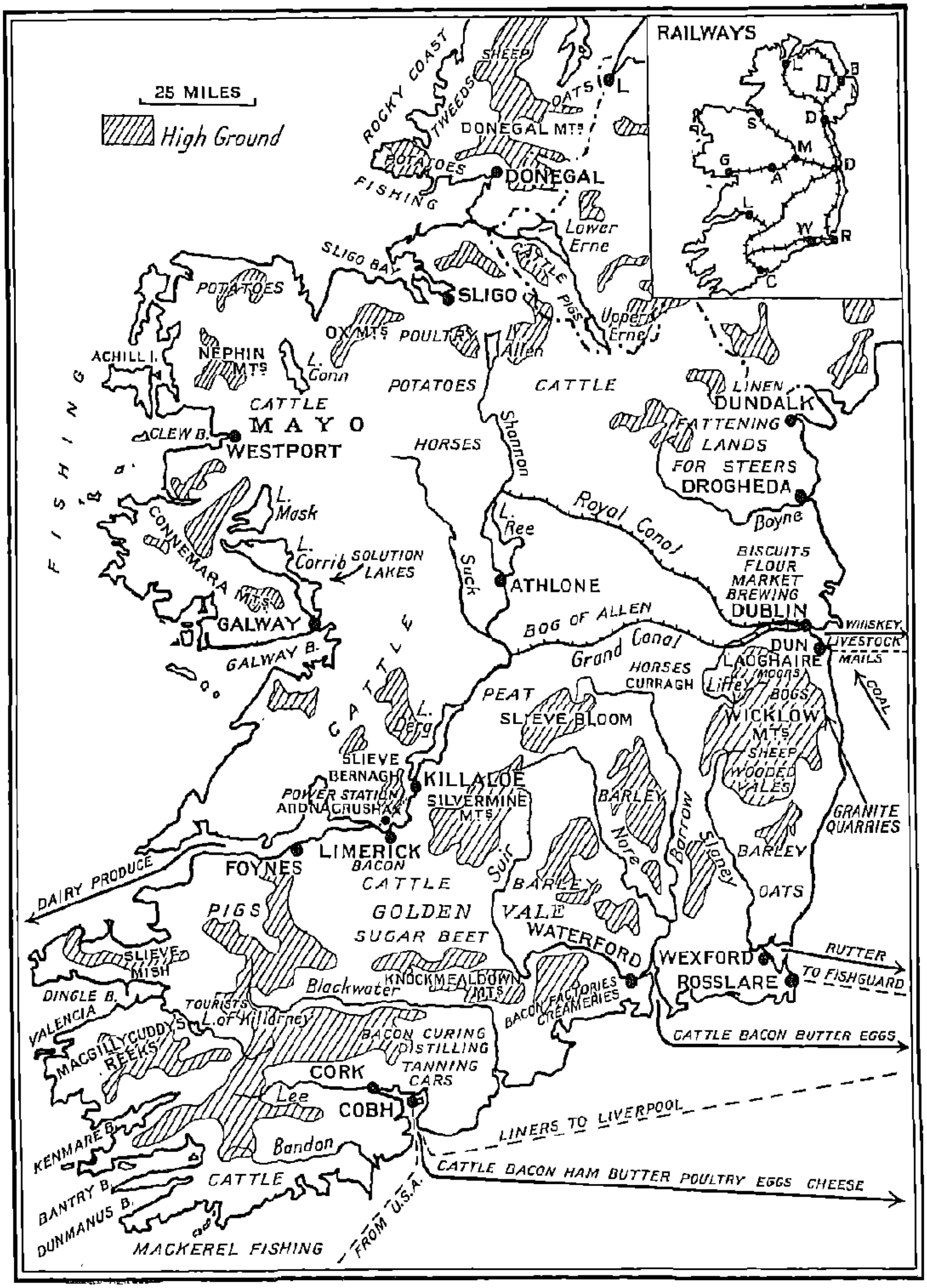


FIG. 33. NORTHERN IRELAND AND EIRE

2. *South-west.*—A region of ridges, valleys and rias on the coast. Kerry (sheepland) and Killarney are popular tourist centres and eastern valleys are fertile, dairying districts. *Cork*, chief city and port for dairy produce, cattle and pigs, has numerous agricultural industries, *Cobh* being port of call for liners.

3. *South-east.*—The granite Wicklow mountains support sheep only but the Wexford plain offers considerable cattle and pig rearing and barley growing for the Dublin breweries. The main port of Wexford is obstructed by silt so *Rosslare* performs mails' service with Fishguard.

4. *The midland plain.*—The better-drained areas in the south (the Golden Vale, foremost dairying region) and around Dublin (arable, stock raising) are the prosperous parts.

Dublin, the road, canal and rail centre of Eire, has industrial activities such as distilleries and breweries, linen, rayon and tobacco but is most important as a port for the bulk of the livestock trade and other typical dairying products.

Limerick, the Atlantic outlet, is badly connected for much development but the Shannon hydro-electric scheme, for which the lakes and rapids are eminently suited, offers greatly extended activities in the future. Foynes, nearby, is of recent prominence in the Atlantic air route scheme.

[*Kodak Snapshot.*

HIKERS

HOLIDAYS IN EUROPE

HINTS ON TRAVELLING

THOSE who have not travelled abroad will like information on various points. To begin with, a passport is not necessary for a short visit to Paris and certain resorts on the French and Belgian coasts, when the actual ticket contains pages to be filled in by the passenger with the name, address, and so on. These pages are detached and accepted in lieu of a passport. The travel agent who sells you the ticket will tell you whether a passport is necessary or not. He will also help you to obtain one. A special form of application has to be completed and a doctor, solicitor, clergyman or other authorised person must certify that the applicant is known to him personally and that the photographs are a true likeness; two photographs are required.

For your ticket it is best to consult a travel agent. There are nowadays many different types of ticket and reductions are granted under certain conditions, varying with the date of departure and length of stay abroad. A short talk with an expert will enable you to comply with these conditions and take advantage of the cheaper fares.

The class of travel must be decided upon and this must depend on your purse. There are three classes of travel in France, and, speaking generally, the second class corresponds to our third. The third class carriages have wooden seats and certainly lack the comfort we are accustomed to, but there is a tendency now to introduce some upholstery in the carriages on the express trains.

Railways.—The trains themselves are divided into three categories, *rapide*, *express* and *omnibus*. The *rapide* corresponds to our express, the *omnibus* to our slow train, whilst the *express* is in between, not stopping at all stations, but making several halts. The *rapide* and *express* are corridor trains. Restaurant cars are attached to all fast and long-distance trains and for the night sleeping cars. These again are of several categories. The sleeping cars proper, or wagon-lits, belong to a separate company. First class passengers enjoy the exclusive use of a compartment, second class passengers have two berths one above the other, with ample bedding, wash basin and toilet requisites. Third class cars are run from Paris to the Riviera, Aix-les-Bains, Switzerland and so on. Three passengers share a compartment, the berths being in a tier, but apart from the comparative lack of space the bedding is just as comfortable and with a little toleration an excellent night can be spent. Tips are no longer a bugbear: 10 per cent on the bill is the rule in restaurant cars, whilst the tip is actually included in the sleeping car fare—and written in separately to avoid argument. For further information on tipping, see the section of this article on *Tips on Tipping*.

There are other types of sleeping car, owned by the French railways. The cheapest are called *couchettes*, and have four berths in a compartment but no bedding. On the Western Railway couchettes are available in the first, second and third classes; on the South Eastern first and second class, and on the other railways first class only. Blankets and pillows (in hygienic wrappers) can be hired quite cheaply. Other more luxurious types, called *lits-salons*, *lits-toilettes*, *couchettes-toilettes*, etc., are first class only.

The Railways are controlled by the Société Nationale des Chemins de Fer. They are divided into five geographical sections, radiating from Paris:

Nord (Northern)—
Paris station: Gare du Nord.
Ouest (Western)—
Paris stations: Gare St. Lazare;
Gare des Invalides;
Gare Montparnasse.

Sud-Ouest (South Western)—
Paris stations: Quai d'Orsay;
(Serving the south-west)
Gare d'Austerlitz.
Sud-Est (South Eastern)—
Paris station: Gare de Lyon.
Est (Eastern)—
Paris station: Gare de l'Est.

In Paris the Gare du Nord and Gare de Lyon are connected by the Ceinture (girdle) Railway, so that through carriages can be run from Calais and Boulogne to the South of France, etc. The railways run special motor buses between the Gare du Nord and Quai d'Orsay; and between the Gare St. Lazare, Gare de l'Est and Gare de Lyon. Through tickets from England contain coupons for these journeys across Paris, the cost being included in the price of the ticket.

Mention must here be made of the *Trains de Luxe*. These are fast through trains composed entirely of first and second class sleeping cars and dining cars. The best known is perhaps the Blue Train running between Calais and the Riviera; the Simplon-Orient Express passes through Paris, Milan and Belgrade to Athens and Istanbul; the Arlberg-Orient Express travels via Zurich, Innsbruck and Vienna, and so on. Luxurious Pullman car day trains, both first and second class, make very fast runs between Paris and the Riviera (Côte d'Azur Express); Paris, Brussels, and Amsterdam (Blue Bird Express), etc., the supplements charged being commensurate with the extra comfort and time saved.

The railway time-tables use the twenty-four hour system, the hours being numbered from 1 to 24. Thus 1.10 p.m. becomes 13.10; 5.15 p.m. is 17.15, and so on. With a little practice this presents no difficulties and it is certainly simpler for long journeys.

Children abroad are not treated as liberally as in England. On international bookings children over four years and under ten usually travel at *approximately* half fare, but for local bookings in France the limit is over three and under seven years, so that any child must pay full fare from his seventh birthday onwards. The limits for local bookings are four to ten years in most other countries in Europe, Sweden and Switzerland providing the notable exceptions as the limit there is four to twelve years.

The Channel crossing and the Customs.—The Channel crossing is normally a pleasant change from the train and an enjoyable experience. In the summer passengers sit on the deck, chairs being provided, and keep their baggage near them. In the winter it is pleasanter to sit below; most boats have seats arranged in fours, with a table between, where you can sit in comfort and look out of the wide windows. The crossing from Dover to Calais takes 1¼ hours; Folkestone to Boulogne 1½ hours; Newhaven to Dieppe 3¼ hours; Southampton to Havre 6½ hours; Southampton to St. Malo 9½ hours, and Dover to Dunkerque (ferry steamer) 4 hours. On the Southampton steamers and on the ferry steamers there are separate saloons for ladies and gentlemen, and berths can be reserved for 1*s*. Single and double private cabins cost 5*s*. upwards, including bedding. On the day steamers, no charge is made for a seat, but private cabins cost 10*s*. and upwards.

On arrival at the port, porters flock on to the steamer and will take your baggage to the Customs house. The number on his cap makes identification easy and, if you have a reserved seat, show him the ticket and he will take your baggage to your place. The usual tip is 2 francs a package.

The Customs presents no difficulty. It is best to open one package in readiness and to declare anything dutiable. The import of matches and playing cards into France is forbidden. Twenty cigarettes or (not "and") ten cigars or 2 oz. tobacco are allowed free; excess must be declared and is charged duty at 320 francs per kilogramme (=2⅕ lb.). The French Customs officials are strict and, *if not declared, tobacco is liable to seizure* and a fine imposed of five times the duty. Tea, new wearing apparel, silks, embroidery and so on are also dutiable but these are not likely to trouble the holiday maker, who can face the Customs without qualms.

Whilst on this subject, let me remind you that the English Customs are equally strict. When making purchases abroad remember that practically everything is liable to duty except used wearing apparel and articles that have been in the owners' possession for a year or were originally taken out of this country.

Luggage.—A little forethought is necessary with baggage. Do not take more than you need, and if you can keep it down to a weight that you can carry you will save much expense in porters. A passenger can *not* claim more space for hand baggage than will go on the rack over his seat, and that space is usually 22 in. in width. Everything should be marked clearly with the owner's name and destination in full, and locked; a wise precaution is to repeat this on a label tied inside in case the outer one is torn.

Heavy baggage must be registered. This means that it is handed to an official at the station of departure, weighed and paid for. A numbered receipt is given, which must be produced at the destination when claiming it there. The Railway Companies look after it throughout the journey, but the owner must pass it through the Customs at the frontier or port. Registered baggage to Paris and certain stations on the Riviera is not examined at the port but at the destination; it is best to ask the London official where the examination will take place. Remember that failure to pass baggage through the Customs means serious delay and expense, for it will remain behind. On English Continental boat trains and in France 66 lb. of registered baggage is allowed free on ordinary tickets (the amount is shown on the ticket), so that if your heavy baggage does not exceed this weight your expense is limited to the registration fee, about 1s. Most other countries in Europe make no free allowance and a charge is made on the whole weight. Your travel agent can give you the tariff and he can also insure you against loss. The premium is very small and in case of loss or theft the insurers pay your loss. This covers jewellery and cameras and is a worthwhile precaution.

Money and valuables.—It is best to buy some foreign money before entering a new country. Failure to do this always involves loss, for some small amount may be needed whilst travelling, just when no travel office or bank is available to exchange. It is obvious that a railway official in France cannot be expected to accept English money any more than an English railway clerk will accept francs. If he does oblige you, he is entitled to take a wider margin of profit than would a foreign exchange cashier, who is trained to make calculations and to detect forgeries. An additional advantage is that the various coins and notes become familiar before you come to use them. In France the unit is the franc, divided into 100 centimes. The centime, through devaluation, has become so small that it has dropped out of use, and the smallest current coins are of 5, 10 and 25 centimes, in nickel; 50 centimes, 1 and 2 franc coins are bronze; 10 and 20 francs in silver, and notes are issued by the Bank of France for 50, 100 and 1,000 francs. Notes for 10 and 20 francs should be refused as valueless; they are sometimes offered to unsuspecting travellers, especially at the ports, but were demonetised some years ago. The rate of exchange is not nearly so formidable as it sounds, thanks to the decimal system of coinage. It is far more difficult for foreigners to get used to the English monetary system, which is most complicated. Further information on this subject is to be found in the next section, *Foreign Money*.

Never carry all your money in one pocket or bag. French people think that pickpockets are more common in England than in their country, possibly because they use the English word which has passed into their vocabulary. Wherever you travel, you are exposed to pickpockets, though in twenty-seven years of travelling abroad my pocket has never been picked. It was once, in Liverpool, when I was returning from Ireland as a boy. Since then I have always distributed my cash into two pockets and carried notes in two others, some in my notecase and my reserve in a pocket cut into the waistcoat lining. I recommend the latter pocket to all men travelling abroad, and to have a button fastening both this and the inside breast pocket. The easiest pocket to pick is the hip pocket and I never carry money in it. It is the simplest thing in the world for an accomplice to detract your attention by speaking to you or jostling you, whilst the pickpocket slips his hand into your hip pocket, and that is the moment to be on your guard. But be careful when changing your suit to change the money over too.

Money or valuables should never be left in an hotel, unless put into the charge of the cashier (who will seal the cover and put it in his safe, free of charge, giving a receipt) or in a locked drawer in your room. It is not fair to the staff to expose them to temptation by leaving things about and a complaint to the manager that something has been stolen always causes unpleasantness. A trick that is apt to be successful is for a servant to place some coveted article in a drawer which you do not happen to use. If you do not notice it and leave the hotel without it, it passes into his possession. If you do notice it and report the loss, a search is made, the article found and the blame is yours. The hiding place may, of course, be under a wardrobe, or the paper lining of a drawer or even under your pillow after the last night. Rings and spectacles are often left in a public toilette, not only in an hotel but on a train or on board ship.

A relative of mine once went to an educational conference abroad. When saying good-bye he offered me a cigarette from a gold case and I asked him if he was wise in taking it, knowing that he never insured. When I told him he could insure his baggage and the gold case for £50 for 4*s.* 3*d.*, he said casually, "Well, do it for me." Fortunately I remembered to do so, for in three days an air mail letter came. Had I insured? He had left his cigarette case in another suit and whilst at dinner it had been taken. His holiday was ruined. A postcard from me relieved his mind: "Holiday not ruined, baggage insured." His claim for £15, supported, I presume, by investigation at the hotel by the insurance company's agent, was paid in full.

It is, especially on a long holiday, a wise precaution to have a reserve fund somewhere. An English cheque can be changed abroad only if you are well-known or if your bank has arranged with its local correspondent for it to be accepted. This is at best a clumsy arrangement, for you may be miles away from the correspondent bank when the need arises, or it may be closed—a Sunday, or a local holiday. The solution is to put your money into traveller's cheques. They are issued by the travel agent at no charge to you; that is, you pay them £20 (or whatever sum you wish to take) and they supply you with (say) five traveller's cheques at £2 each and two at £5. Traveller's cheques are issued in denominations of £2, £5, £10 and £20. For a short holiday or when spending a few days in each of several countries, it is best to take cheques of £2. For a longer holiday or when staying a long time in one place, the larger denominations are handy when settling the bigger bills. These traveller's cheques protect you against loss. The usual system is for you to sign each cheque in the space provided in the bottom left-hand corner. This is done when they are issued to you and they thereby become your property. In due course, when you need the cash, you countersign on the top left-hand corner, and the two signatures are compared by the cashier. Should you lose the cheques, they cannot be cashed by the finder, for to imitate your signature is not easy, especially as the specimen signature is covered by the hand of the writer, and moreover, whenever in doubt, a cashier will ask for the passport or other identification, such as the envelope of a letter. Traveller's cheques are not only accepted by the travel offices and banks, but by the hotels, shops, steamers (purser's office), etc., and are exchanged into foreign currencies exactly as if they were English bank notes. Any cheques not used are refunded in full by the travel agent on return to England—or you can use them up in a shop at home! Loss should be reported immediately to the nearest office of your travel agent and to its head office.

In France, stamps can be purchased from a post office, which is painted blue and marked POSTES et TELEGRAPHES, and from the tobacco shops (TABAC), but the hall porter of the hotel usually has them. The usual rates are frs. 1·50 for letters and 90 centimes for postcards going abroad.

Long-distance journeys.—Travelling by night is usual for the longer journeys, because of the time saved. Attention to one or two details will add much to your comfort. If you do not patronise the sleeping car, book early and ask for a corner seat. You can specify facing or back to the engine, window or corridor side, smoker or non-smoker, or "Ladies only," and when taking over your tickets you should get the clerk to confirm that he has secured what you wanted. It is not always possible to get it, of course, for someone else may have booked earlier—and wise people book a long time ahead for the holiday seasons—but the reminder gives the clerk the opportunity to check up and perhaps make another effort, and in any case if you have not got what you want it is best to know it in advance and watch for a fellow traveller who will exchange seats with you. In France, smoking compartments are labelled *fumeurs*; ladies' compartments, *dames*. Many long-distance trains have women attendants dressed in grey overalls, and they can be very helpful, either by day or night. But the most important thing is to have everything you need for the night packed in one little case or in a linen bag, inside your suitcase—in the top corner, and always the same top corner, so that you can squeeze in a hand and pull it out without lifting the heavy case down from the rack. Watch that no one puts a suitcase on top of the one you want—or that you do not do so yourself. Towels and soap are provided in the toilette but it is nicer to have your own, whilst, incidentally, with a bottle of eau-de-Cologne and a handkerchief one can work wonders, to say nothing of the refreshing feeling the spirit gives. Bedroom slippers are a great relief on a night journey, especially after a hard day's sightseeing. Do not, of course, wear your nicest clothes. Keep those to put on after a bath on arrival at the hotel, when you will emerge as fresh as if you had slept in bed—thanks to the stimulation of new surroundings and to the feeling of "being there." So refuse any suggestion of strenuous exertion or late night entertainment on the first day. You will need a good night's sleep if your holiday is to be a rest—and the only good holiday is the one that brings you back refreshed; it is better to stop at home than to return worn out.

A word about restaurant cars. Continental railways have a habit of putting the wagon-restaurant at the front or back of the train. Notice at which end it is and how many coaches away your own is placed. You are not allowed to remain in the wagon-restaurant after the meal is finished, and if you can count the coaches as you return you will easily find your seat—it is surprising how many people fail to do so in a long train. The attendant passes along the corridor before meal times and will ask you which *série* you prefer. Lunch is often served in several series, the first at 12, the second at 1, or even at 11.30, 12.30 and 1.30. Make your choice and tell him *première série, deuxième* or *troisième*. He will give you a little paper ticket with a number indicating the seat thereby reserved for you; there is a different colour for each series. In due course he will pass by with a bell, calling *déjeuner est servi* or *diner est servi*. You should go at once—your place is kept only a reasonable time—and the head waiter will show you to your place on production of the ticket. Small bottles of wine are invariably placed on the tables, but their cost is not included in the meal. If you prefer water, the waiter will bring a bottled water—Evian, Vichy or other natural source water from one of the French spas, which are quite cheap. The prices are shown on the *carte des vins* on the back of the menu.

Some people prefer to eat lightly, especially on long journeys when they have to sit for hours at a stretch. They can obtain at any large or frontier station just what they want —cartons of fruit, crisp rolls, cakes and other delicacies all wrapped up in cellophane paper in the most attractive manner; drinks, hot or iced, served in hygienic carton cups, which are extracted from tall glass tubes untouched by hand and thrown away after use. Gleaming white trolleys move along the platform with attendants equally immaculate in white overalls. Our English railways have much to learn in the art of serving hygienically impromptu meals, though France is not quite so up-to-date as Austria, Germany, and Switzerland, where the cleanliness makes one feel that England has lagged behind.

On going abroad.—Be careful whose advice you take. There is an immense amount of misinformation available on travel abroad. Go to a trained expert, take his advice and stick to it. Plan your trip carefully, and travel slowly. Give yourself days of rest; sightseeing is most fatiguing and, after all, you need to let it all soak in, to digest it, like a good meal. Don't hurry, don't try to see everything, and don't worry. Accept the rough with the smooth and make allowances, especially in the busy holiday periods. Hotel managers, railway officials and travel office staffs are driven almost to distraction at these times. They work long hours under difficult conditions and are doing their best. It is not their fault that trains are late, connections missed, hotels full and that other people change their minds and do not vacate their rooms. These things upset their plans as well as yours. They will do far more for you if you can smile and be patient than if you complain and bluster.

Book early. Get in before the rush. You stand a better chance of corner seats in the trains, front rooms in the hotels and you avoid long waits in the travel offices. Don't expect the best room in the hotel for the minimum price. The "advertised fare" of a fixed tour must be based on the cheapest rates, but you can always pay a little more for a better hotel or for better rooms, or both. Don't ask for "the best and cheapest." The best is never the cheapest and the cheapest is never the best.

The large travel agencies maintain uniformed interpreters at ports, frontiers and all the towns where they have their own offices. The services of these men are free to passengers who hold the tickets of the agency they represent. Although an interpreter may not refuse to help a traveller in difficulty who does not hold a ticket issued by his agency, he must attend to his own clients first, and it is only fair to remember that the cost of maintaining these men is considerable. You can at least reward the agencies whose men you use, or are liable to use, by purchasing your tickets from them.

Lastly, read something of the history of the country you intend to visit; it makes for greater understanding. Imagine a visit to Scotland without knowledge of Mary Queen of Scots. But do you know why William Tell shot the apple on his boy's head? Travelling makes history live.

As one who has lived over twenty-five years abroad, in regular contact with travellers of all nationalities, may I point out how closely the traveller is watched and how his whole nation is judged, praised or stigmatised, by the behaviour of one individual. Each traveller abroad becomes, for the time being and in the place where he happens to be, the representative of his country. A Chinaman, smiling and cheerful under adverse circumstances, recently warmed my heart towards three hundred million of his countrymen. The mean action of another man, witnessed in a dining car twenty years ago, poisoned my mind against his compatriots. There was a certain Samaritan who went down from Jerusalem to Jericho; his action made his country's name a synonym for kindness through the ages. It behoves us, therefore, never to offend, by our words, our looks, our actions or our dress, but to be a little more careful than we should be at home.

The moment we step on foreign soil we become the guests of another nation, just as if we had entered a friend's house; we become entitled to the protection of those set in authority. In return, we must obey the laws. A traveller once asked me whether, under certain circumstances, he should give the salute customary in the land which he was visiting. By all means. Why not? It would look odd if a foreign visitor to England did not rise when our national anthem was played. In America, men immediately remove their hats when a lady enters a lift, a charming custom which is growing now in England. In Germany a man removes his hat when entering a shop or office. We should observe these customs and conform to them. To do otherwise is churlish and makes us appear, in foreign eyes, uncivilised. We should never demand that our foreign hosts adapt themselves to us. Most people, happily, derive real enjoyment from observing local customs. They learn a lot. And if, unconsciously, we do offend, a smile and a word of apology in our own language will always make amends. The tone of our voice is understood, if not the words, and a smile is the language of the universe.

We go abroad to learn how things are done in other countries, not to criticise. Our praise may be spoken; it makes many friends. Our criticism we must keep to ourselves.

There is an immense amount of pleasure to be derived from mixing with the people, and using fearlessly what little knowledge of a language we may have. It is surprising how far a few words will go and, if we have many, how rapidly proficiency is acquired. We learn so much from everyday contacts, bring happy memories back and, what is more, create those good impressions which go so far to make a real league of the nations.

And when at last we return home, let us think a little of our own heritage. What are we doing to attract the foreigner to our shores, that he may get to know the English people in their homes? We admired the ancient buildings, carefully preserved; the colour of the gaily painted houses, the window boxes and trailing geraniums; the cleanliness and absolute absence of litter. Let us fight that modern Cromwell, the jerry builder; preserve our beauty spots, our cottages, our lovely houses built in the time of Queen Anne and the early Georges, when architecture was at its best. Let us keep our streets and countryside free from litter, and make our dingy houses gay with fresh paint and cheerful colours. Let us learn to take our meals out of doors, encourage the open air restaurant at home. It is an amazing thing that, with our reputation for love of sport and fresh air, there is hardly a place in the length and breadth of the land where a really good meal is served out of doors.

Yes, we have much to learn by travel, but, above all, we can learn to understand the other fellow's point of view; and understanding leads to friendliness—and peace.

FOREIGN MONEY

The only difficult currency in Europe is the pound sterling, which is divided into shillings and pence, to say nothing of such pitfalls as half-crowns, halfpence and farthings. All the other currencies are simplicity itself; the unit (call it franc, lira or pound) is divided into one hundred smaller parts, and that is all. The table given below is so simple that it explains itself.

It will be seen that three countries, Belgium, France and Switzerland, call their unit by the same name—the franc. Up to 1914 their values were the same, 25 to the pound sterling. Now, however, they all vary, so that a French franc is worth only a fraction of a Swiss franc. In Belgium the value of the franc is so low that a new unit has come into being, the belga, which is worth five Belgian francs. On bank notes both units are shown, a 50 franc note bearing also the denomination "10 belgas."

In Egypt and Palestine the unit is the pound and is divided into 1000 milliemes; 10 milliemes equal one piastre and 100 piastres equal one pound.

Whilst it is very easy to calculate in terms of one currency, it is not so easy to translate an amount in one currency into its equivalent in another. To do so we must employ the "rate of exchange." This is apt to fluctuate and is quoted in the financial columns of the Press. Suppose, to give an example, the Swiss rate of exchange is 21·75, this means that you get 21 Swiss francs 75 centimes for every pound sterling. It is important to know the exact rate when changing money. But when looking in shop windows we need something less complicated; a rough and ready calculator is all that is required. Such a table can readily be prepared in advance. It is sufficient to say that roughly 20 Swiss francs make a pound, so that one franc equals one shilling; 1 franc 50 centimes equals 1*s.* 6*d.*, and so on.

Suppose the French rate of exchange is 140. For the purpose of rough calculation we can make out a table like this:

140 francs = £1 0 0
70 „ = 10 0
7 „ = 1 0

Such a table, written out with the equivalents of every shilling on a postcard and carried in the pocket, will prove a ready reckoner invaluable when shopping. It should have a column of equivalents for every country visited. You can then shop, or shop-gaze, with confidence, and know the value of small change for porters, meals and tips when travelling and when passing from one country to another.

It is important, before leaving England, to provide yourself with at least some money of each country, if possible in small change. Although the English ten shilling note can readily be exchanged for foreign currency almost anywhere, it is no more legal tender abroad than a fifty franc note is legal tender in (say) Crewe or Swindon. Keep your foreign monies in the stiff paper envelopes provided for the purpose by the foreign exchange departments of the travel agents and make yourself familiar with them in advance.

Larger amounts can be carried safely in the form of traveller's cheques, which safeguard the holder against loss. These have been described on page 456.

Germany offers the traveller special cheques called Registered Mark Traveller's Cheques, which entitle you to cash more marks (the German shilling) to the pound. These cheques are sold by all the leading British travel agents and banks and can then be exchanged in Germany for actual money. The benefit is so great that no visitor to Germany should travel without them, but it is essential to calculate fairly exactly how many will be required. The maximum allowance is fifty marks a day. Any cheques not used are subject to a small discount before their value is refunded.

Similar arrangements exist for Italy and a few other countries, except that in Italy they take the form of a Tourist Lire Letter of Credit. But the object is the same—to overcome the adverse rate of exchange and to attract the visitor by allowing him more local currency in exchange for his own.

When crossing certain frontiers, notably Germany, you will be called upon by officials to fill in a form, on which you must enter exactly what money you have with you. You must be careful to declare everything, whether it be English, Belgian, German or other currencies, and all Traveller's Cheques or Letters of Credit. Brief particulars are entered in your passport and on leaving the country other officials will check what you have left. They will not allow you to take out more money than you took into the country. So declare everything when you go in. The officials are invariably helpful and courteous and the formality is quite a simple one. When entering Italy, no one traveller is allowed to import more than 300 lire. These regulations vary from time to time and in a permanent work such as this can only be given as an indication. The regulations in force when you are travelling can be ascertained from the travel agent.

FOREIGN MONEYS

The following tables are reproduced by courtesy of Thos. Cook & Son, Ltd. The values are approximate.

BELGIUM

Monetary Unit=

1 Franc of 100 centimes	0	1⅝
Bronze 1 centime	—	
„ 2 centimes	—	
Nickel, 5 „	—	
„ 10 „	—	
„ 25 „	—	
„ 50 „	0	¾
„ 1 Franc	0	1⅝
„ 5 „	0	8¼
Silver, 20 „	2	9
„ 50 „	6	10¾

Notes are issued by the National Bank for 50, 100, 500, 1,000 and 10,000 Francs.

On October 26th, 1926, a new unit of currency was introduced termed the "Belga," 1 Belga gold=Fcs. 5 paper.

CZECHOSLOVAKIA (Bohemia)

Monetary Unit=

Czecho Kronen of 100 Heller	0	1¾
Bronze 5 Heller	—	
„ 10 „	—	
Nickel 20 „	—	
„ 50 „	—	
„ 1 Kc	0	1¾
Silver, 5 „	0	8½
„ 10 „	1	5¼
„ 20 „	2	10¾

Notes are issued by the Republic for 10, 50, 100, 500, 1,000 and 5,000 Czecho Kronen.

DENMARK

Monetary Unit=

Krone of 100 Ore	1	1
Coinage.		
Aluminium Bronze, 2 Kroner	2	2
„ „ 1 „	1	1
„ „ ½	0	6½
Nickel, 25 Ore	0	3¼
„ 10 „	0	1¼

Bank Notes are issued for 5, 10, 50, 100 and 500 Kroner.

EGYPT

Monetary Unit=

Egyptian Pound of 100 Piastres	1	0	6
Silver, 20 Piastres		4	1¼
„ 10 „		2	0½
„ 5 „		1	0¼
„ 2 „		0	5
„ 1 „		0	2½
Nickel, 10 Milliemes		0	2½
„ 5 „		0	1¼
„ 2 „		0	0½
„ 1 „		0	0¼
Bronze, ½ „		0	0⅛
„ ¼ „		0	0 1/16
Gold, 100 Piastre or E£1	1	6	0
„ 50 Piastre or E£½		13	0

The National Bank of Egypt issues notes E£1, E£5, E£10, E£50 and E£100.

English notes are sometimes accepted as 97½ Piastres, but are generally at a small discount.

FRANCE

Monetary Unit=

1 Franc of 100 Centimes	0	2
Copper, 1 Centime	—	
„ 2 Centimes	—	
Nickel, 5 „	—	
„ 10 „	—	
„ 25 „	—	
„ 5 Francs	0	7
Jetons 50 Centimes	0	1
„ 1 Franc	0	2
„ 2 Francs	0	4
Silver, 10 „	1	2
„ 20 „	2	4

Notes are issued by the Bank of France for 50, 100, 500 and 1,000 Francs.

GERMANY

Monetary Unit=

1 Reichsmark of 100 Pfennig	1	7

Silver, 5 Reichsmarks	7	11
,, 2 ,,	3	2
Nickel, 1 ,, 1933	1	7
,, 50 Reichspfennig	0	9½
Aluminium Bronze, 10 Rentenpfennig	0	2
,, ,, 5 ,,	0	1
Copper, Reichspfennig	—	
,, 2 ,,	—	
,, 1 ,,	—	

All pre-war coins, together with the many war issues in Nickel, Iron, Zinc and Aluminium, are demonetised.

Notes are issued by the Reichsbank for R. Marks, 10, 20, 50, 100 and 1,000; also by the Renten Bank for 10, 50, 100, 500 and 1,000 Renten-Marks.

See also page 460, column 2.

HOLLAND

Monetary Unit=

Gulden of 100 Cents.	2	2½
Bronze, ½ Cent.	—	
,, 1 ,,	—	
,, 2½ Cents	—	
Nickel, 5 ,,	0	1¼
Silver, 10 ,,	0	2½
,, 25 ,,	0	6½
,, 50 ,,	1	4½
,, 1 Gulden	2	2½
,, 2½ ,,	5	6¼

Notes are issued by the Netherlands Bank for 10, 20, 25, 40, 60, 100, 200, 300 and 1,000 Guldens.

HUNGARY

Monetary Unit=

Pengoe of 100 Filler	0	10
Copper, 1 Filler	—	
,, 2 ,,	—	
Nickel, 10 ,,	0	1
,, 20 ,,	0	2
,, 50 ,,	0	5
Silver, 1 Pengoe	0	10

Notes have been issued for 5, 10, 20, 50, 100 and 1,000 Pengoes.

ITALY

Monetary Unit=

1 Lira of 100 Centesimi	0	2½
Bronze, 5 Centesimi	—	
,, 10 ,,	—	
Nickel, 20 ,,	—	
,, 50 ,,	0	1¼
,, 1 Lira	0	2½
,, 2 Lire	0	5
Silver, 5 ,,	1	1
,, 10 ,,	2	2
,, 20 ,,	4	4

Notes are issued for 10, 50, 100 and 1,000 Lire.

MOROCCO

Monetary Unit=

1 Real or Dollar Silver	0	11

Notes.—Only notes issued by the Moroccan Government now circulate.

1 Real or F. 5	0	11
4 Reals or F. 20	3	9
and		
20 Reals or F. 100	19	0

NORWAY

Monetary Unit=Krone of 100 Ore.

Nickel, 1 Krone	1	0
,, 50 Ore	0	6
,, 25 ,,	0	3
,, 10 ,,	0	1¼

These new coins are all perforated with a hole in the centre.

Bank Notes are issued for 5, 10, 50, 100, 500 and 1,000 Kroner. Notes of 1 and 2 Kroner ceased to be legal tender after July 1st, 1926.

PALESTINE

Silver, 100 Mils	2	0
,, 50 ,,	1	0
Nickel Bronze, 20 Mils	0	4¾
,, ,, 10 ,,	0	2¼
,, ,, 5 ,,	0	1½
Bronze, 2 Mils	0	0¼
,, 1 Mil	0	0½

Notes are issued by the Currency Board for 500 Mils, 1, 5, 10, 50 and 100 Palestine pounds.

SWEDEN

Monetary Unit=Krona of 100 Ore.

Bronze, 1 Ore	0	0
,, 2 ,,	0	0¼
,, 5 ,,	0	0⅝
Silver, 10 ,,	0	1¼
,, 25 ,,	0	3
,, 50 ,,	0	6
1 Krona	1	0
2 Kronor	2	0
Gold, 5 Kronor	5	6
,, 10 ,,	11	0
,, 20 ,,	22	0

Bank Notes are issued for 5, 10, 50, 100 and 1,000 Kronor. Notes of 1 Krona are withdrawn.

SWITZERLAND

Monetary Unit=

Franc of 100 Centimes	0	11¼
Bronze, 1 Centime		—
,, 2 Centimes		—
Nickel, 5 ,,	0	0½
,, 10 ,,	0	1
,, 20 ,,	0	2¼
Silver, 50 ,,	0	5½
,, 1 Franc	0	11¼
,, 2 Francs	1	10½
,, 5 ,,	4	8½

Notes are issued by the Swiss National Bank for 20, 50, 100, 500 and 1,000 Francs.

TIPS ON TIPPING—AND EXTRAS

Tips, like the poor, are always with us. There is general agreement that they are degrading, that they should have been abolished years ago, but the fact remains that they remain, a so-called necessary evil. To abolish them requires determination and collective action; the former is rare and the latter, easy as it sounds, most difficult to achieve in this selfish world. As instances of the former, there is one group of hotels in England where tips are forbidden—and great has been their reward. At the other end of the scale, I remember going to the Sudan before the war. Egypt had then an evil reputation for *bakhsheesh*, a situation which has now improved, so imagine my amazement on entering the Sudan to find a prominent notice that "*bakhsheesh* is forbidden." Travellers were asked to co-operate with the Government Railways in maintaining a high moral standard amongst the native population by not tipping the porters and other people who served them. Never have I seen such cheerful service. But after all it was only to be expected, because the termination of each transaction was marked, not by a tip, but by a smile, with another in response. If only that example could be extended, how much pleasanter travelling would be!

Continental hotels have achieved collective action, and credit is due to them for relieving the traveller of much anxiety. Ten per cent on the bill is the regular thing, though sometimes it is fifteen per cent—a point to watch. This covers all the interior staff, bedroom, dining-room, lift and bath attendants. But it does not cover the hall porter and his outdoor staff, the porters who carry the baggage. Be prepared with small change, as you would tip a porter in England, when your baggage is delivered to your room. This system works well and there is no need to give additional tips; indeed, to do so undermines the system, unless some quite exceptional service has been asked for and rendered. Taking Continental breakfast in the bedroom is not an exceptional service; it is quite customary. But other meals served in the bedroom usually involve a supplement on the bill, which in its turn increases the ten per cent *service* charge. If the hotel staff ask for a tip, say quite firmly that it is paid to the cashier. Even if they do not understand your words, they will understand your tone.

In some countries, Germany for instance, this percentage is added to chits for drinks in restaurants, added in as a separate item, *Dienst* or service. Compared with the 25 per cent we often have to give at home for lack of small change, this has manifold advantages. There is no reason why we should not follow suit in our own restaurants, but at present we lag behind.

Railway porters expect slightly more than in England, and in France especially they are greedy. Sleeping Car attendants now have their tip incorporated in the fare and separately shown on the ticket as *service*.

On excursions, it is customary to tip the guide; your appreciation will indicate the amount to give, but naturally the number in your party and the time you have employed him will influence you, as well as the interest he imparted. In a motor coach tour passengers often come to an agreement to give either a collective tip or all the same. The driver's tip may or may not be included in the fare; the programme will show. In private car hire, it is customary to include the driver's tip in the fare, but here again the ticket or receipt will state the fact.

It will be seen that a Continental tour, *properly organised* by a responsible firm of travel agents, includes all the principal tips. The programme, or estimate of cost, should clearly state the fact—if it does not, there is something wrong and an item of expense has been omitted.

When cruising, tips are not included. They must be budgeted for as an additional expenditure. There are so many stewards and stewardesses, all with different functions, that it can be most confusing. The best plan is to divide them into three categories: cabin staff, dining saloon staff and public lounge or deck staff. Then divide your total into three parts and distribute accordingly. That is a general guide. For instance, on a popular fourteen-day cruise, where the fare is about a pound a day, 30*s*. is a good tip. Divide it as follows:—

	s.	*d.*	*s.*	*d.*
Bedroom steward . .	7	6		
Bath boy (who cleans the shoes). . . .	2	6		
			10	0
Dining-room steward . .			10	0
Deck steward, smoke-room steward, librarian, 2*s*. 6*d*. each, with 2*s*. 6*d*. in hand for anyone else who has served you specially . .			10	0
			£1 10	0

Circumstances alter cases, however. You may never go near the smoke-room, but give the deck steward a lot to do. A party in your cabin may make an awful mess, and so on. Then adjust my list accordingly.

Ladies must take into account their stewardess. Of the 7*s*. 6*d*. she should have 5*s*. and the bedroom steward, who cleans the cabin, 2*s*. 6*d*.

First class cruises demand a higher total but the ratio of distribution remains the same. On ordinary sea trips by regular liners the rate per diem can be lower, especially when three or four people occupy one cabin. On the other hand, tips on Atlantic steamers are definitely higher. In all cases, less is expected of those who occupy the cheaper cabins and more of those who pay a higher fare. But whatever you give, if you give it according to your means and the trouble you have caused, it will be right and you may be sure it will be received gratefully. In all probability the stewards have decided, long before you have, what you are likely to give. They are shrewd judges of character.

The wine steward is paid 10 per cent on his bill.

Extras can make or mar a holiday. The cost of registering heavy baggage can be quite heavy. In England and France there is a free allowance of 66 lb., so that a suitcase of that weight goes free, except for the 1*s*. registration fee. But in practically every other country every piece that "goes into the van" has to be paid for on a fixed scale. Your travel agent can tell you the approximate cost. Only baggage which will go on the rack over your head can be taken into the compartment and this rule is more strictly applied than at home.

Insurance against theft or loss of baggage is an extra but a wise one and quite small compared with the cost of replacing, say, the contents of a suitcase.

Afternoon tea is not included in *en pension* hotel tariffs. It is a peculiarly English meal, an unnecessary one in Continental eyes seeing that it comes between a big lunch and a big dinner, so that you have to pay for it. It can be expensive, especially if they bring you a *thé complet*, with cakes and biscuits or buttered toast. A *thé simple* may satisfy your needs or, if there are two of you, one *thé simple* and one *thé complet*. When making a week's stay some hotels will make an *en pension* charge for tea served every day, at a reduced rate. The manager or head waiter will arrange it, but you should agree the rate in advance. Do not airily tell them to put it on the bill, or you may get an unpleasant surprise.

Laundry can be a very expensive item. It is done well and quickly, but even the pressing of a crumpled garment is charged heavily. So take uncrushable things and pack carefully, with plenty of tissue paper.

The *kurtax* is an extra charged by the municipality of a resort to pay for amenities, such as an orchestra in the gardens, the maintenance of a skating rink, and so on. It may be a few pence per diem or even shillings, and is collected on the hotel bill. Inclusive tours should cover it, but it is a trap for the unwary. So, in comparing prices of different travel agencies, watch for it.

Baths are always an extra on the Continent.

WHAT TO WEAR ON HOLIDAY

Nearly everyone, for the first holiday, takes far too much—and regrets it, for baggage can be a burden and wearisome to the flesh. It can also be expensive, in porters, tips and registrations fees. Taking too little is also costly, as well as inconvenient. There is nothing so exasperating for a man as the discovery, at a late hour, that he has all the essentials for evening dress except the tie. It is a situation which only H. M. Bateman could adequately depict. There is another situation—the man who has packed his bag and wonders whether he has put in that tie. It is surprising how often that situation does arise; he always has packed it and it is always at the bottom. A special imp sees to these things.

But these situations can be avoided if you make a list, well in advance, of what you will need. Classify it in headings, morning, afternoon, evening, night; games, cold or wet weather and hot weather and toilet; town wear, country wear and, for a cruise, things to wear on deck. Then go through the list and strike out all non-essentials. For a Continental holiday take soap; the hotels do not provide it. A small towel for the train journey is desirable and eau-de-Cologne not only cleans but refreshes after a night journey. Consider the suitability of your clothes: stout shoes for walking, dark things for evening—men need not dress for dinner, except at the best hotels, on a summer holiday but it is refreshing to change into a darker suit, which will always be more suitable for town wear. Plus-fours are out of place at the opera and shorts are definitely wrong on a boulevard. Never be conspicuous. Dress with even greater care than you would for a holiday at home.

For a summer cruise it is obvious that warm things are required when going north and light clothing for the Mediterranean and Atlantic islands. Remember that it is cooler on board ship than on shore. Ladies should avoid frocks with fluttering ends. Dresses should be trim, neat, not too nautical and non-crushable; hats light and tight fitting—both, in fact, to defy the wind. Rubber-soled shoes are a comfort, dark glasses useful, and beach suits just right for sun bathing. Coloured scarves are handy for making fancy dresses as well as for warmth.

For men, flannels are best, and sweaters or blazers, then plus-fours. Berets are acceptable. A light coat is useful for evenings and is sometimes necessary when motoring ashore. Evening dress is essential on a first class cruise, optional for the tourist class cruise, though always desirable. Fancy dress should certainly be considered. Sun helmets are necessary only on cruises to the west coast of Africa, never in the Mediterranean, even Egypt, but if you do require them they can be purchased cheaply on the spot.

Keep your baggage light but strong. Decide on a colour scheme and keep to it. It looks well, is easily described if ever a piece is missing and is readily identified in the Customs. Label each piece by stick-on labels at both *ends* and by tie-on labels at the handle; and put a label, with your name and home address, *inside* each piece. That precaution, only too rarely put into practice, brings lost luggage home. Distinctive labels, striped or coloured, help to identify and recognise.

For a cruise, special labels are supplied with the tickets. They alone should be used and affixed according to the directions—almost invariably at both ends of each package. CABIN labels will direct your baggage to your cabin; WANTED ON VOYAGE will send a trunk to a special hold, where it is accessible except on Sundays and when the ship is in port; you cannot get to it on those days; NOT WANTED ON VOYAGE applies only to a regular liner and baggage so labelled is not seen again until arrival at destination.

If you are joining an outward-bound liner at a Mediterranean port, your heavy baggage can be put on board before the steamer leaves England. It will go round "long sea" free of charge and is then specially labelled, as: WANTED AT MARSEILLES.

All baggage should be locked, and if you have duplicate keys carry them quite separately.

SUGGESTIONS FOR HOLIDAYS

FRANCE

THE real joy of a holiday lies in its contrast from normal everyday existence. The town dweller, weary of bricks and mortar, pines for the hills or the sea; to those whose lot is cast in a small village, the hum of busy traffic or the crowded floors of a huge shop provide a real delight. The Briton from overseas, escaping the glare of the desert, rejoices in the pale sunshine and rain-drenched fields at home; but who amongst us here would not exchange a dripping raincoat for a solar topee? Yet change in environment is only half the battle, or less than half the holiday. If you happen to live in a country, as we do, where you are continually hoping that the weather will be kind and hopes, alas, are not fulfilled; where, however good the food, you know each menu in advance; where, in spite of your love of open air and sport you cannot eat a decent meal out of doors—then is the time to break away from old ideas and take a holiday, a different holiday, abroad.

In travelling abroad the journey becomes not a means to an end but part of the holiday itself; the good-byes at Victoria, the rush to Dover, the ease with which you find yourself on board the boat, the white cliffs of England rapidly receding; Calais harbour, the strange buildings, a blue train and very low platform, blue-bloused porters with strange faces and stranger voices, and one familiar figure, a Cook's interpreter; "*Avez-vous quelque chose à déclarer?*" and you are in the train, in the restaurant car, puzzling out the advertisements which adorn its walls. Never was such cheerful chatter in an English train, but then never was there such a cheerful meal; and, appetite whetted by the Channel crossing, submitting to the waiter's expectation that you will eat of everything, not knowing how to refuse these strange new dishes but unexpectedly enjoying them, you feel your holiday begun.

Paris.—As you have probably surmised, your first holiday—with me—will be in Paris, and I want you to take it, if you can, in the spring, for then Paris is perfection. No sooner in your hotel than you are out, or so it seems, for the swift taxi ride has given you a glimpse of boulevards lined with cafés and most intriguing windows, which you can just perceive from your balcony, itself a lovely vantage point. The hall porter gives helpful directions in fluent English and with a thrill you emerge from the narrow street on to the broad boulevard, alive with hurrying traffic, its pavements, wide as they are, crowded with humanity. Wide they must be, for cafés almost touch each other and, behind rows of shrubs in tubs, Parisians sit and talk and drink or listen to the music from within. You find a place and join them, ordering *chocolat* or *café*, and find the price marked on the saucer—a very simple bill! Great juggernauts of omnibuses go crashing by, neat taxis and private cars with unfamiliar lines. You watch the never ending stream of passers-by, so different from those at home, picking up scraps of conversation, an odd word here and there at first, then little sentences until your ear becomes attuned and French becomes reality. You wander on, night falls, the pavements clear somewhat and high arc lamps, piercing through leaves of tall plane trees, make fairy patterns on the ground beneath.

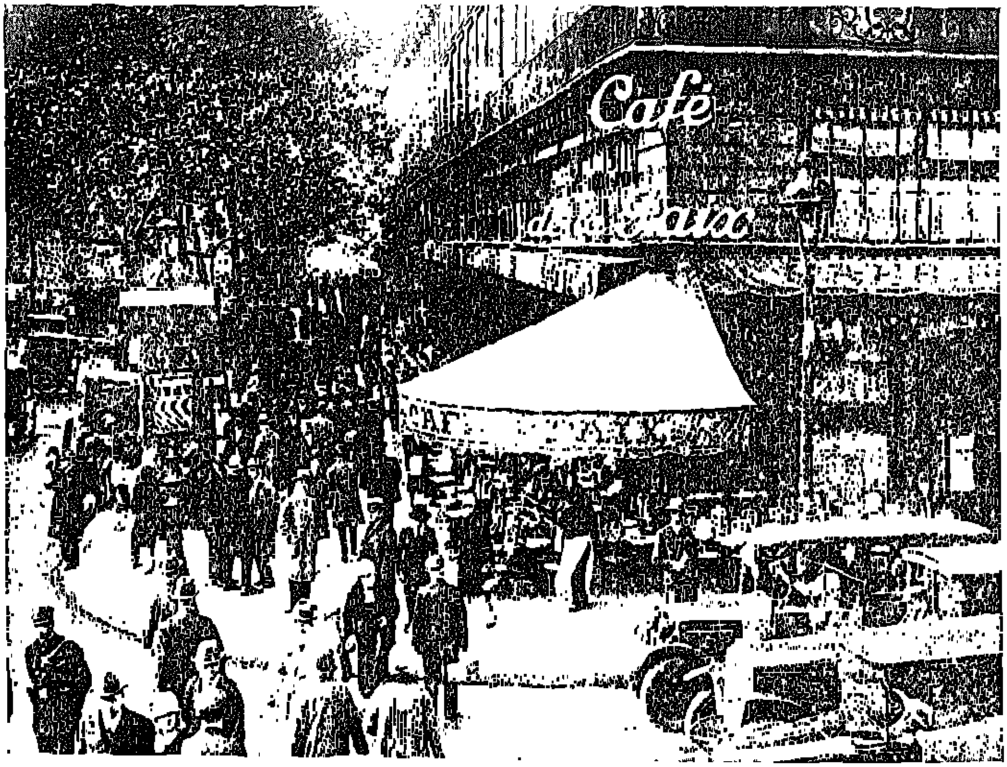
Where shall we dine? This little restaurant where the smiling waiter, a napkin on one arm and white apron round his waist, invites us in. He knows we are English and straight away explains the menu: *hors d'oeuvres*, a host of little dishes almost a meal in themselves; delicious onion soup; *sole normande* or Grenoble trout; for meat, *entrecote Bercy*, with asparagus from Argenteuil, *carottes Vichy* and *pommes de terre frites*. Never were such fried potatoes or such a tender steak. Then cheese, dessert and good French coffee—and English coffee after this is ignominiously doomed.

It is late. We wander back but find ourselves impelled, by the novelty of it all to pass our street, continue to the Madeleine, down the rue Royale to the noblest square in Paris, perhaps in all the world, the Place de la Concorde. There, in a blaze of light, we stand enthralled by the obelisk from Egypt, its centre piece, and watch the endless traffic surge around and up the broad mile-long sweep of Paris' famous thoroughfare, the Champs Elysées. Flanked by deep belts of chestnut trees, it sweeps onwards and upwards to where the Arc de Triomphe, symbol of Napoleon's victories, stands triumphantly indeed. Behind us the dark mass of the Tuileries Gardens, lightened by the arcades of the rue de Rivoli, where to-morrow we shall shop. And so to bed.

Now I could take you in imagination round all Paris, to that island in the Seine, crowded with memories of the city's earliest days, where stands the Cathedral of Notre Dame and that gem of Gothic art, the Sainte Chapelle, the Holy Chapel of France's kings; to the Panthéon, the shrine of her immortal sons; to the Louvre, the great museum and gallery of art; to the historic churches, Napoleon's tomb, and the vast pleasure park, the Bois de Boulogne. But of these you can read in any guide and what you need to know is how to see them. The answer is simple. From the Place de la Madeleine take the sightseeing coach, which in one day will show you most of Paris; in another, the royal Palace of Versailles and Malmaison, the charming home of Napoleon and his Empress Josephine; and lastly, Fontainebleau, rich in memories of France's history, including the lovely forest of that name and the artists' village of Barbizon, passing the very spot where Millet painted *The Angelus*.

These done, you feel you know Paris and can return to see at leisure the things that pleased you most; to the Louvre to sit at the feet of Greece's greatest masterpiece, the *Venus of Milo*, to browse amongst the pictures; to the Panthéon, to read the history of Paris in mural paintings, and incidentally lunch in a restaurant of the Latin quarter, sitting afterwards for a while in the Luxembourg Gardens before visiting the lovely sculpture in the Musée. You will revisit Notre Dame, climb one of its towers to see the view and walk around outside, crossing the river to grasp its noble situation; and there you will find the river wall is lined with curious boxes filled with books where, if you are lucky, you may pick up some treasure for a song. You will walk under the arcades of the rue de Rivoli where almost every shop sells *articles de Paris*, the perfect presents for friends at home. You will visit the big stores, called, not by the names of their owners, but by some dedication, a charming custom: *Au Printemps*, a huge shop dedicated "To Spring;" *Au Louvre*, from the palace and museum of that name, and so on. The big stores well repay a visit, an interpreter, if you should need one, being always available. Indeed, in almost every shop on the Boulevards, the rue de Rivoli, the avenue de l'Opéra or the rue St. Honoré there is someone who speaks English. It is far more fun, of course, to use your French and you can get much useful practice in the smaller shops.

Sunday, in the museums and places of interest, is a day to be avoided. They are open, but *tout Paris* flocks to see them. The day of rest for these places is Monday, when they are liable to be closed, so that day is best reserved for shopping. July 14th, *Fête Nationale*, and August 15th, *Assumption*, are national holidays when shops are closed



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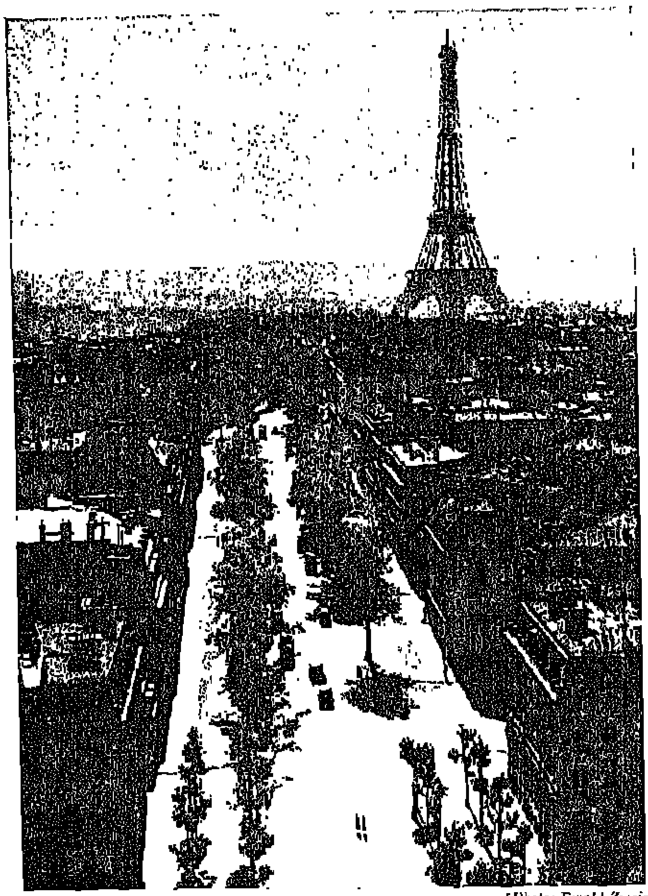
CAFE DE LA PAIX, PARIS

and museums packed to suffocation. If you take art seriously the *visites conférences* or guide lectures, some in English, at the Louvre are well worth following, and, of course, you will not miss the floodlit sculptures, twice weekly in the evenings: a long and narrow hall, lined with Grecian statues and ending in a marble staircase at the head of which is seen a massive piece in stone. The lights go out, the darkness can be felt, and suddenly you see that stone transformed by light into a perfect form—a winged angel poised upon the prow of a ship unseen, the *Victory of Samothrace.* Would that that ancient sculptor could see his masterpiece as you can see it now.

The night life of Paris has always been a by-word, but really, in comparison with what other cities have to offer, Paris differs only in that air of irresponsible gaiety which it has made its own. It really is an experience to spend an evening at the Moulin Rouge or the Bal Tabarin. All you have to do is to get in a taxi and go there, or, if you prefer an escort, take the evening sightseeing coach, which solves the problem of what to see and how to go through unfamiliar sections of Parisian life under proper guidance, with the added advantage of being brought right back to your hotel at 2 a.m. You will certainly see the students' fastnesses in the Latin quarter as you never could alone, while Montmartre will furnish you with experiences to last a lifetime. Personally, I prefer Montmartre in the day. Then it is what Hampstead is to London, a little village within the boundaries of the city. Strolling through its quiet streets you feel transported miles away and decades back. There is even a hunting lodge of ancient kings, a relic of the times when all was forest here.

Loitering in Paris is a lovely way to spend a spare day—or days, and it is the only way in which to absorb the Parisian atmosphere. But even loitering is better when you know where to loiter. Suppose you find yourself on the Boulevards with nothing to do. Wander westwards towards the Madeleine, down the rue Royale to the Place de la Concorde. Walk round and then enter the Tuileries Gardens, watch the "yachting" on the round pond (especially if it is a Thursday, the sensible day on which the French schools close, and the children are there) and pass through the Arc de Triomphe de Carrousel. Then turn round and see the superb vista westwards, two miles long, through the Tuileries Gardens and up the Champs Elysées to the Arc de Triomphe, the whole framed by the Arch of Carrousel and pierced by the Egyptian obelisk. Then cross the river by the pont du Carrousel and look westwards to the pont Royal towards the Trocadéro towers and the Eiffel Tower. Make a note to return here at sundown and again by night; you will reap a rich reward. Continue on the left bank, known as the *rive gauche,* where there is a fine view of the Louvre—if your eyes are not glued to the boxes of books which line the parapets—and so to the Ile de la Cité, where the Law Courts, the Sainte Chapelle, the Conciergerie and Notre Dame await another visit. To return, cross the island to the *rive droite* until you reach the rue de Rivoli; then westward to the Louvre, where the avenue de l'Opéra will bring you back to the Boulevards.

A restful afternoon can be spent under the chestnut trees of the Champs Elysées, just west of the Place de la Concorde. Here you will see delightful children at play, with nurses in the quaintest provincial costumes attending to them. There are booths with little toys which you will want to buy, a *petit guignol* or Punch and Judy show, and sweetmeat stalls. Or you can take a taxi to the Bois de Boulogne, via the Champs Elysées, the Arc de Triomphe, stopping to visit the Tomb of the Unknown Warrior beneath, and the Avenue Foch, the loveliest residential quarter in Paris. The *Grands Lacs* should be your objective, with Longchamps, the famous racecourse, if time permits. You can return by the *Métro,* the Underground Railway, from the Porte Maillot. From this station the line goes direct under the Champs Elysées and the



[Photo: Ewald Zweig.

EIFFEL TOWER

rue de Rivoli. The Concorde, Tuileries or Louvre stations will be near your hotel and the fare is always the same, for any distance, 1·15 francs first class (tickets are punched *en route*) and 70 centimes second class (no control). A simple journey like this (or in the reverse direction up to, say, Arc de Triomphe) and you will find your way anywhere, with the help of the excellent maps in every station.

It is a good plan to know what to do on a wet day. The cinemas are obvious, but there are always matinées at the Opéra Comique and the theatres, or a visit to the Louvre Museum or the big shops. Here a word in your ear: do not start buying the first day, but look around, compare prices and "get your eye in"—then buy. Do not visit Napoleon's Tomb (in the Invalides, where the Museum of the Army is) on a wet day, because without sunlight the lighting effect is lost. Similarly the glory of the stained glass windows of the Sainte Chapelle is doubled on a bright and sunny day. There are excellent concerts and, when visiting churches, note the times of organ recitals. At 10.45 on a Sunday morning Notre Dame provides a feast of music. The Madeleine and Saint Eustache have week-day recitals.

Holidays are important days—some to avoid and some to watch. July 14 is the great national fête day and shops are closed; there is a general exodus from Paris so that travelling is most unpleasant, but the dancing in the streets and squares at night is amusing. Go up to Montmartre or walk along the boulevards to the Bastille, returning by bus or metro. August 15, Assumption, is a general holiday and shops are closed—also Ascension Day and Whitsun (three days).

Mardi gras, which is Shrove Tuesday, provides much fun on the boulevards. *Mi-carême*, the fourth Thursday in Lent, is even gayer, with fancy dress and confetti throwing on the Boulevards. Easter is essentially a religious festival and the music in the churches is magnificent, but there is a gingerbread fair (*pains d'épice*) at the Place de la Nation, which is good fun.

Excursions.—But Paris is not France and there is much to see. A visit to Chartres will give a lasting impression, not only of a cathedral town but of the countryside. The road takes one through the Valley of Chevreuse and the Forest of Rambouillet, whilst the grand Gothic cathedral dominates the city. Set upon its hill, it may be seen and its influence felt long after the city has faded into distance. The valley of the Seine, with tea on the terrace overlooking Paris at St. Germain, is a pleasant afternoon excursion, and Chantilly, with its forest and *château*, is another.

A more ambitious tour, a feast of beauty associated with some of the most moving events of French history, is to the Châteaux of Touraine. The Garden of France, as it is sometimes called, is the theatre of Rabelais' heroes and revives all the history of France at the time when Touraine was the hub of the kingdom. Architecturally these châteaux are unique and some are still the homes of the noblest families of France. The most beautiful may be visited.

All these excursions are best done by car or motor coach, though there are means of doing them by train.

These châteaux, in parklike settings worthy of their stately architecture, are products of the French Renaissance, but France is happy in possessing examples of every successive period of art. To the student at least they should be better known.

Antique art survives particularly in the amphitheatres at Orange and Arles, in arenas at Arles and Nimes, the mausoleum at Saint Rémy, the triumphal arches of Orange, Carpentras and Autun.

The Romanesque period is expressed in churches scattered in every province west and south.

Gothic cathedrals, the peak of art in France, are found chiefly in the east and north, where stained glass windows add glory to the stone; though fortified towns, their city walls intact, delight the visitor from Carcassonne in the south to Mont Saint Michel in the west.

In the eighteenth century cities learned to beautify themselves: in Paris, the Place de la Concorde; in Nancy, the Place Stanislas, framed in the matchless iron *grilles* of Jean Lamour, set an example to the world at large, followed a century later by Haussmann, who opened up the main Parisian thoroughfares and made a city beautiful.

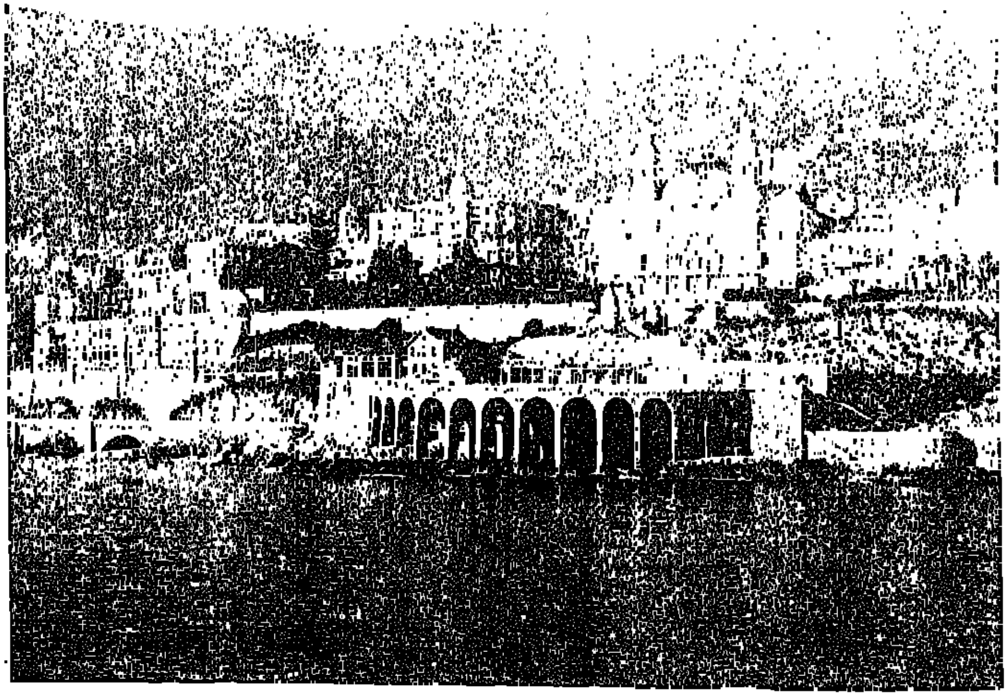
The nineteenth century was pre-eminently an age of painting, whilst the great manufactory of porcelain at Sèvres and the Gobelins factories of carpets and tapestries at Beauvais and Aubusson are famed throughout the world.

France is traditionally a centre of intellectual life; learning, dating from the first university of Tours, founded in the ninth century, is expressed in sixteen universities, at some of which summer courses, for the special benefit of foreign students, are arranged. The Office National des Universités, 15, Queensberry Place, London, S.W.7., will give all information.

The Riviera.—Someone once asked me for a place where sunshine was guaranteed, a place, *bien entendu*, which was near enough for a summer holiday. Quite a lot of places sprang to my mind but as this was to be one of those sunshine-or-your-money-back guarantees, I quickly said, "The Riviera." Now the Riviera, generations ago, earned an enviable reputation for winter sunshine but it is only in recent years that people have flocked there in the summer, in search of that tan which is the hall-mark of the best holiday. There you can certainly get it, to the accompaniment of bathing without shivers, well seasoned with palm trees, casinos and tennis. Indeed the summer season on the Riviera has become more important than the winter season.

You can read in any booklet of the charms of Nice, Cannes, Monte Carlo and of that string of sweet little Riviera villages with sandy beaches, pine forests and an air of utter seclusion, where villas and pensions masquerade as hotels. You can get there in twenty-four hours from London by rail and see Paris *en route* if you wish. But you may not know of the delightful ways of going there, which add variety to the journey itself. For instance, you can go by steamer, from London or Liverpool—a big liner on its way to India—calling at Gibraltar, and sometimes Tangier, and turn the journey into a week's cruise. There are Dutch steamers from Southampton which call at Lisbon as well. You can take train to Aix-les-Bains and travel by motor coach via Chambéry, Grenoble and Sisteron to Nice. This is the famous *Route des Alpes*, a three days' drive through glorious Alpine mountains and over two passes. And from Nice you can cross over to the Island of Corsica, known to the Greeks as *Kalliste*, the most beautiful. The birthplace of Napoleon deserves all its pseudonyms—another is "The Garden of Perfume"—for cool breezes waft the scent of the *maquis* far out to sea, giving you a welcome to marvellous mountain scenery, hillsides clothed with luxuriant vegetation and a rugged coast carved by the sea into fantastic shapes. You will find the Corsican people courteous and hospitable, whilst well-organised motor excursions make sightseeing easy.

Another motor coach trip, this time in the Pyrenees, is from Biarritz to Luchon, where the mountain passes are 7,800 ft. high, amidst scenery which beggars description. Pau, Lourdes, and a host of small mountain holiday resorts nestle under the Pyrenees, whilst from Hendaye or St. Jean de Luz northwards the coast is dotted with sandy *plages*, big and small. The long coast line of France offers infinite variety; the harmonious coves of the Basque country near the Spanish frontier; the pine groves of Hosségor and Arcachon; the famous beaches of Royan, Les Sables d'Olonne and La Baule (and many others in between);



MONTE CARLO AND THE CASINO, FROM THE HARBOUR [*Canadian Pacific Photograph.*

the stately cliffs of Brittany; the lovely sands of Normandy, to the golden sandhills of the Calais district.

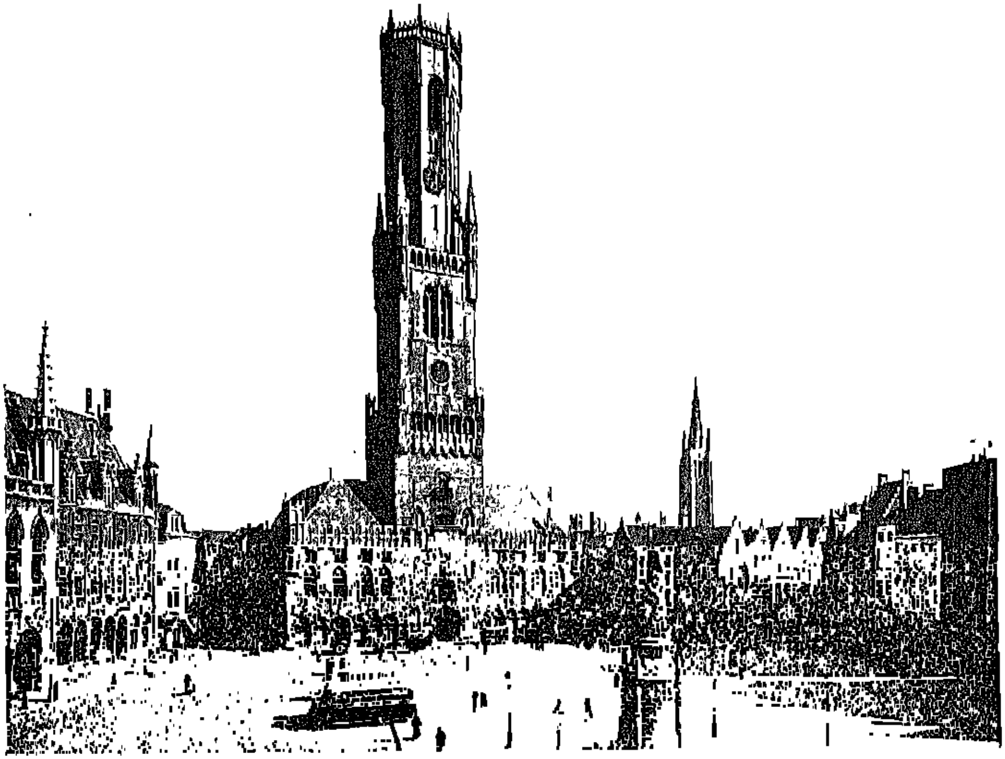
The watering places of France form the finest array of spas in the world and its mountain resorts have two separate seasons—summer for walks and climbs, winter with its sports.

France overseas.—France overseas is so near as to be overlooked, but Algeria offers wonderful opportunities for an Easter holiday. In a fortnight you can see Algiers, which is only forty hours from London, and penetrate to Biskra, in an oasis of palm trees, on the fringe of the Sahara Desert, returning via Timgad, a Roman town almost complete in all its details, and Constantine, perched high on the cliff face of a lofty plateau and dominating the plain, yet all but cut off from the "mainland" by a narrow gorge 300 ft. deep—a situation of surpassing grandeur.

BELGIUM

Belgium is a country which is so easy to visit that the veriest tyro needs no help. The coast is one long string of seaside resorts with glorious sands and bathing, tennis, golf and casinos, and excellent hotels. Ostend is the chief centre, with Blankenberghe a close second, whilst Zoute, the most northerly and almost on the Dutch frontier, is a staunch favourite with English people who like a quieter holiday.

As alternatives to sea bathing and games, excursions can be made by train, motor coach or car to the delightful cities of Bruges,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THE BELFRY AT BRUGES

Ghent, Antwerp and Brussels, as well as to Ypres and the battlefields. Brussels, of course, deserves a longer visit. It is a little Paris, with its wide streets and boulevards, open air cafés and fine buildings. Excursions should be made to Waterloo, Louvain and Malines.

The Ardennes district deserves to be better known. It is a lovely combination of river, valley, wooded hills and rocky crags, ideal for a walking holiday and for those who love the countryside. Dinant is the best centre. Apart from excursions to old castles and châteaux, the visitor soon hears of the Grottoes of Han. They are really extraordinary—a series of vast, mysterious caverns with subterranean rivers and lakes, which are amazingly interesting.

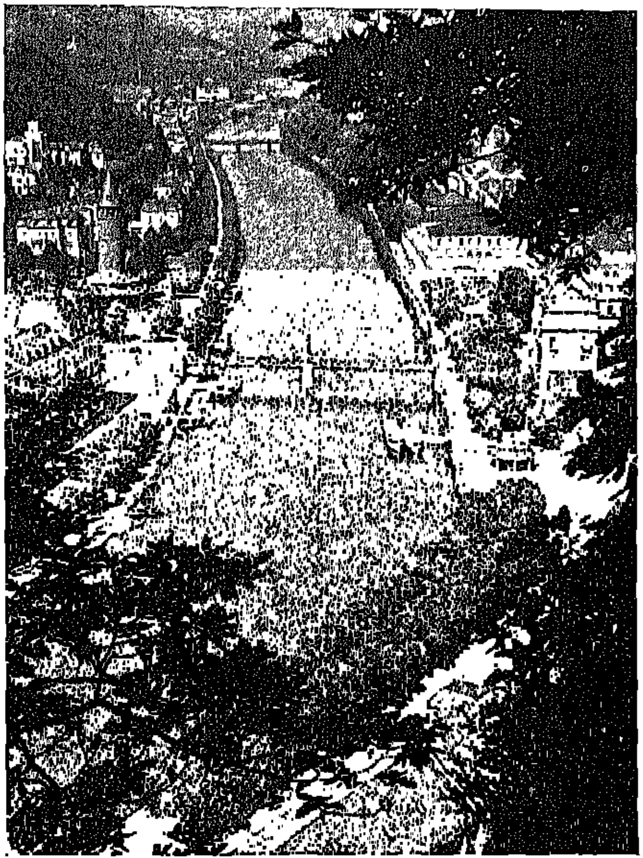
GERMANY

A visit to Germany is a marvellous experience—an education as well as a holiday. Travelling is a real pleasure, for train, air and motor coach services are admirably organised, whilst hotels of all grades are scrupulously clean, provide excellent meals and have beds whose only fault is that they are too comfortable. In interest Germany has an infinite variety. Her cities and towns are really beautiful and put our great manufacturing centres to shame. Her mediaeval towns are perfectly preserved and absolutely complete. Her museums are marvels of ingenuity and organisation. Her scenery ranges from the quiet hills of the Harz District to the snow-covered Alps of the Bavarian Highlands, from the romantic valley of the Rhine to Saxon Switzerland, from the Black Forest to the Baltic seaside resorts.

The temptation to write a guide book to Germany is very strong. That is not the function of these articles, however, but to give information of a more personal and practical nature. Excellent leaflets are published by the German authorities which deal fully with everything there is to be seen. They can be obtained, free of charge, from the travel agent. But no guide book, no leaflet, can describe the charm of the old towns, their gabled, timbered and painted houses gay with geraniums trailing down from window boxes, hung with signs of exquisite wrought-iron work, or painted, in Gothic lettering, with the names of their builders or first owners. They are fairy tale houses come true.

If possible, stay overnight and wander around on foot. Then, in the evening, when all the tourists have gone, climb up on to the town wall, sit on a rampart and watch the old roofs and narrow streets change in the changing light of the setting sun. Stay on till the stars are out and you will come away filled with happy memories. I am thinking of Rothenburg and Dinkelsbuhl, near Nuremberg, but there are many other cities for those who love the quaint and picturesque buildings of the Middle Ages. Sunset at Heidelberg, seen from the Schloss, or castle, up on the hillside, must not be missed. The broad plain and distant Rhine bathed in a purple haze, the twinkling lights of the brilliantly lit streets of Heidelberg far below, the river Neckar a stream of molten gold, the sombre wooded hills on either side, and above and beyond the glory of an almost tropical sunset make an impression which words cannot convey. And you can dine at the Schloss Hotel in a room whose spacious walls of glass reveal the same entrancing view, deepened by the dusk, and wake in the morning to the music of deep church bells far below.

In Germany, wherever there is a view, there is an hotel where you can enjoy it in comfort; and if the point is in the slightest degree inaccessible there is a railway—cog-wheel, rope or aërial—so that you may reach it easily. An aërial railway is an experience, for with a thrill you find yourself suspended in mid air over a valley. But the thrill is greater when you make the downward journey on a dark and stormy night. You endeavour to penetrate the gloom outside, seeing nothing but your reflection in the window. Some genius turns out the light. The fixed faces of your companions disappear, the inky darkness turns to light and shade. You distinguish the bold shapes of the mountain side and, far below, a vivid cluster of twinkling lights, the town where you will sleep, while raindrops, turned to molten gold in the beams of the head lights, dash themselves into atoms on the shimmering steel wire which separates you from eternity. That was my experience on the way down from Shauinsland to Freiburg. I shall not forget it.



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BAD EMS

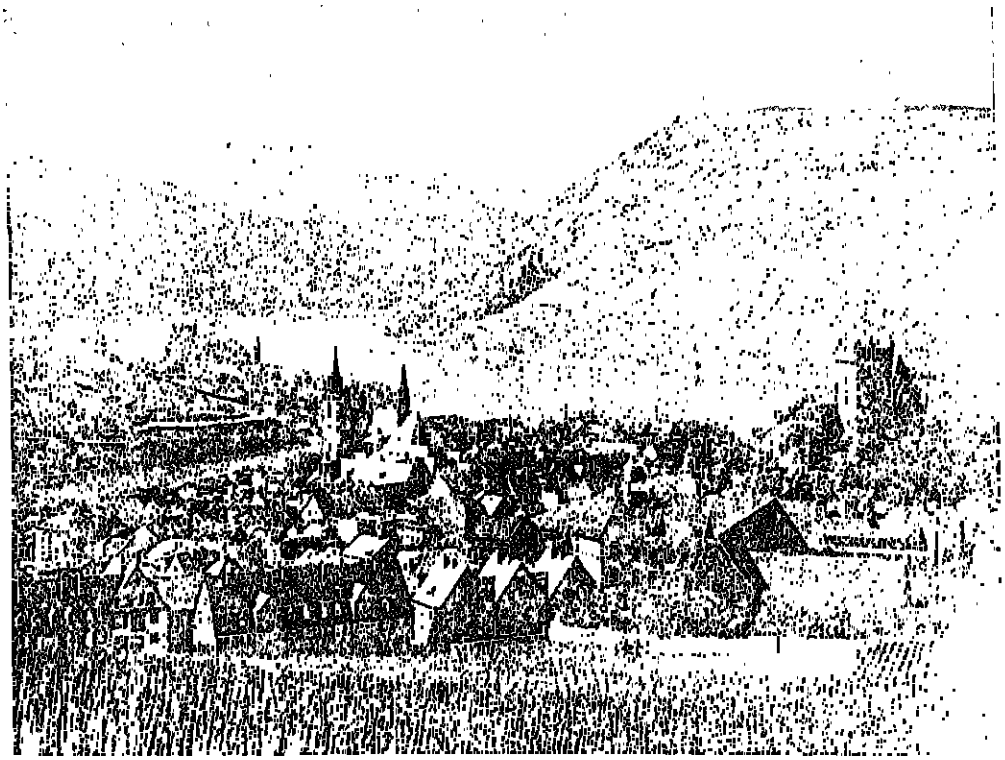
A museum in Germany is not a museum, it is one huge toy. The National Museum in Munich, for instance, sets out to show how everyday things have evolved. Take coal mining: you see how the coal seam undulates under the surface of the earth; how in early times it was tapped at the outcrop and then by horizontal borings; how vertical borings developed; the problems that arose and how they were solved. Then you go down into a full-sized mine and work the machinery yourself.

You can study the development of the piano from the harp, through clavichord and spinet to the grand piano of to-day; and on each instrument a composition of the period will be played. There are bicycles, trains, motor cars and aeroplanes, from the very first to the latest models. The housing problem through the ages is a most fascinating section; it includes heating, lighting, water and waste and is very difficult to get away from.

There are sections for geology, chemistry and astronomy. You must not miss the planetaria, a huge model of the solar system, so large that you travel in a cage along the earth's path and see it all at work. The physics section includes the development of wireless, moving pictures and phototelegraphy. You press a button and see how television works.

You may have to be forcibly removed from this museum.

At Dresden the Museum of Hygiene follows that proper study of mankind—man. There you can examine the internal arrangements of the human body, the functions of its organs, the cause and prevention of ailments, the working of our joints. You press innumerable buttons and see your inside at work. You will be in turn fascinated, awed and frightened, but you will



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BINGEN-ON-RHINE

learn a lot and come away filled with admiration for the skill which has brought into existence a museum which no one should miss and to which every medical student should make a pilgrimage.

Then there are the restaurants. Their name is legion, chiefly because so many people merely sleep in their flats and take their meals out. Passing over the most expensive establishments, try Kempinski's, in Berlin. It is air-conditioned and you will find it cool, sweet and odourless on the hottest day. At tea time and in the evening there is dancing, and if a perfect stranger asks you for a dance, do not refuse. Introductions are dispensed with; there is no need of them and it is all very charming. Some restaurants have numbered tables and a telephone to each, so that you can ring up anyone whom you fancy at another table and ask for a dance!

Do not miss Haus Vaterland. It is unique. You pay an entrance fee and wander around at will. Finding yourself in "Bavaria," you naturally sample the beer, served by girls in peasant costume. You take a cocktail in "Tirol," watching Tirolese dances. You listen to a concert in "Rhineland," watching the boats sail up and down the river, with a climax in the shape of a realistic thunderstorm, admirably staged, and eat your dinner at the same time. For coffee, move over to "Constantinople" and sit in a harem! You can lunch in "Spain," or dine at "Grinzing," with the lights of Vienna at your feet. It is all very wonderful and very friendly, and your entrance fee is deducted from the bill.

At Munich, you will of course go to the Hofbräuhaus. On the ground floor, with its huge wooden benches and tables, an incredible amount of beer is put away each day, and in the upper rooms you can eat the Bavarian specialities, "white sausages" and the like, in real Bavarian style.

But every town has its speciality, in beer, wine or liqueurs, as well as an endless variety in soups, sausages and cakes; or you can order your own favourite dish, confident that it will be cooked to a turn and served most appetisingly. You can eat out of doors; in an ancient guildhall or in a modern construction of glass and steel; on a river steamer or in a railway train or station. Wherever there is a "Sehenswürdigkeit," a something-worthy-of-seeing, whether it be lake or wood, hill top or valley, town or country, there will be a delightful restaurant, with the best possible view, and a meal both charming and inexpensive.

Whilst on this subject, when in Berlin go to the Tempelhofer Feld, the airport, and watch the aeroplanes come and go as you eat in the admirable restaurant. It is a fascinating spectacle.

It is hard to come down to mundane things, but a few hints on travelling may be welcome. Germany may be reached by a variety of routes: via Dover-Calais or Dover-Ostend; from Harwich to Flushing by day or to the Hook of Holland by night. From each of these Continental ports there are through carriages to the principal towns in Germany. A less known route is from Gravesend by Dutch steamer to Rotterdam and thence by Rhine steamer to Cologne, Mayence and Mannheim; it has the advantage of being inexpensive as well as novel. You can combine a visit to Germany with a voyage on a crack Atlantic liner if you go to Southampton and embark on one of the big German boats on its way from New York to Bremen or Hamburg.

Once in Germany, rail travel is cheap and very comfortable. Do not overlook the river steamers on the Rhine from Dusseldorf. to Mayence (the best scenery and greatest interest lie between Coblence and Biebrich-Wiesbaden); on the Moselle from Coblence to Cochem through the vineyards; on the Neckar from Heidelberg to Heilbronn and Neckarsteinach. All these are in the Rhine Valley and form inexpensive and restful excursions.

In northern Germany the river Weser is very beautiful between Hannoversh-Münden and Hamelin, a once-upon-a-time town of Pied Piper fame, a river trip well worth while. From Hamburg steamer services are run to holiday resorts on the river Elbe, and a trip round the port is a wonderful experience. Berlin is surrounded by lakes and rivers, on all of which steamer services are run. They make Berlin a delightful centre for excursions.

From Dresden you must go by steamer on the river Elbe to Meissen, and visit the famous porcelain factory there. Another river trip, this time upstream, is to Bad Schandau in "Saxon Switzerland," through deep gorges of red sandstone cliffs.

Motor coach excursions are organised from all the principal centres. If a motoring holiday is desired, you cannot do better than take the excellent tours which start from Cologne. These are organised, in conjunction with the English travel agents, specially for English travellers. They visit Rhineland, the Bavarian Alps, the Black Forest and Berlin (including Dresden and the Harz Mountains). Each of these four trips takes seven days and two can be combined to make a fortnight's holiday.

Austria.—If ever you are at a loss where to go for a holiday, go to Austria. There is something very pleasant about Austria, and very friendly. What nicer welcome could any country offer than the welcome Austria gives at the frontier station? Instead of gloomy passport and customs officials imbued with the idea that all men are sinners, the first person to greet you is a fair-haired girl in spotless overalls, a smile and a gleaming white trolley. And far from knowing no German, you find you understand everything she says: "Bier, gefällig?" The first word is in the jug, the smile says, "If you please," and anyone can translate the interrogation mark. Then come the officials, and they are just as friendly. You leave them behind at the frontier but the trolley girls are found at every station and so is the beer, with a host of delicacies and drinks, charmingly—and hygienically—served.

Of all Austria's attractions, the best known is the Tirol, an Alpine country of lofty peaks, steep precipices and glistening glaciers. Innsbruck is the best centre and can well claim to be the most beautiful town in the Alps. Situated in a broad valley, it is surrounded by snow-clad mountains which dominate every street and form the perfect background to its painted Gothic houses. Mountain railways take you up to the mountain tops on either side of the valley, some 7,000 ft. high, in a matter of ten minutes, so that whole days can be spent happily rambling amidst scenery that defies description, whilst motor coach excursions may be taken in all directions. The highest mountain railway of all, the Zugspitze, 9,790 ft., is within easy reach.

Small resorts are to be found all along this lovely valley. Zell-am-See, or Zell on the Lake, is a perfect example. The mountains and glaciers are mirrored in the lake, walks can be taken everywhere and a mountain railway transports you in a few minutes 6,500 ft. up to the Schmittenhoehe. But Zell is now the starting point of the famous Grossglockner Alpine Road, a new motor road crossing the Alps from north to south into Carinthia, which should on no account be missed. This road climbs to a height of 7,980 ft. From the Franz Joseph hut, at the highest point, it is possible to walk on to the glacier which sweeps past the road.

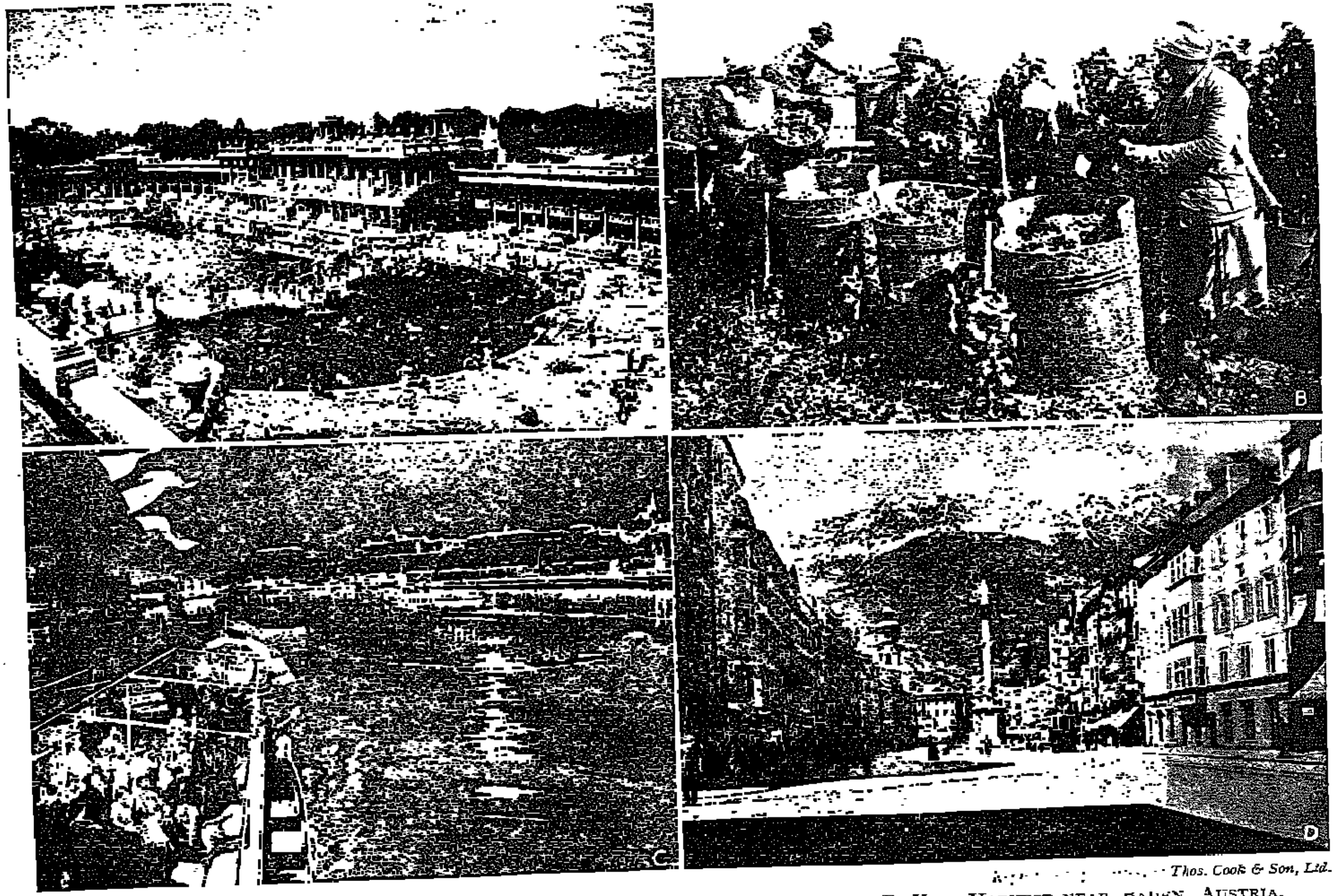
Other delightful centres in the Tirol are Kitzbuhel and Bad-Gastein, the latter superbly situated over a cleft in the mountain side into which a magnificent waterfall thunders incessantly. Its radio-active springs have made it famous as a cure for rheumatism and nervous affections.

Carinthia, south of the Tirol, deserves to be better known by English travellers. It is a district of well-wooded lakes and low hills, with a magnificent background of distant snow-covered peaks. The Woerther See (or Lake) is charming and has the great advantage of warm water for bathing, due to hot springs which raise the temperature at times to 80° F. Only those who have plunged unknowingly into the icy waters of the Alpine lakes can appreciate what this means. For the same reason Carinthia enjoys a mild climate, making it ideal for early spring and autumn holidays. Boating, yachting, tennis and golf can all be had at Portschach and Velden, and the many tiny resorts on this lake, with of course walks and excursions all around.

On the last eastern spur of the Alps is Semmering, Vienna's own special holiday resort. It boasts an hotel a thousand yards in length—an indication of its popularity—and here of course there is every possible amusement from swimming pools to casinos, and dancing to golf.

Vienna has always been a magnet. Its theatres, concerts, cabarets are too well-known to need description, but an experience that should not be missed is a visit to a wine garden in the vineyards on the hills around. The wine served is called "Heuriger" (pronounced *hoyrigger*), which means "this year's" and under its influence Vienna goes very, very gay.

The river Danube west of Vienna equals the Rhine in beauty and interest, and excellent steamers make the journey a very pleasurable one. The hills on either side rise 3,600 ft., with castles and monasteries perched on their crests. It was in the fortress of Duernstein that Richard Coeur de Lion was found by Blondel. Linz, the terminus of the steamers, is not far from Salzkammergut, a region where some forty lakes reflect in their clear waters the rocky, snow-clad peaks which surround them. Here are tiny villages with quaint hotels that are world famous. The Weisses Roessl Inn at St. Wolfgang, for instance, is the original White Horse Inn of the musical comedy. Gmunden, Bad Aussee and Bad Ischl are but a few of the many charming spots in this delightful holiday district.



Thos. Cook & Son, Ltd.

A. The Szechenyi Thermal Swimming Bath in the City Park, Budapest.
B. Vine Harvest near Baden, Austria.
C. Budapest at Night, seen from the Danube.
D. Innsbruck.

Salzburg itself, close by, I leave till last. To most people Salzburg means music and the Festival held in August—to me it means beauty. In all Europe there can be no more entrancing city than this lovely town where Mozart was born. In it one imbibes something of that spirit, lighthearted and gay, which Mozart, alone of all the masters, has translated into music. It is the spirit of that music, flowing out of Salzburg to the seven provinces of Austria, that makes of Austria the perfect summer holiday.

No account of Austria is complete without mention of the national costumes, worn by both men and women, in some places on Sundays and holidays only, but in many as everyday wear. It is not surprising that many visitors should adopt the dress too, for wear on holiday and as subsequent fancy dress.

In the Salzkammergut, the pretty "Dirndlkleid" (maiden's dress), is not only worn by the inhabitants of this district, but also by those of the bordering provinces, and by women visitors to the various summer resorts. It consists of a coloured bodice, and a white shirt-blouse with a silken neckerchief, a coloured apron and often also a kerchief artistically fastened round the head. In the province of Salzburg and in the adjacent Inn valley in the Tirol, on Sundays and holidays all the women wear the black state dress of Salzburg, a tucked shirt, a close fitting bodice with an apron in light colours and a flat black hat with a plate-like brim and gold cords. In the district of Pinzgau in the province of Salzburg and in the adjoining parts of Tirol (Kitzbuhel, the valley of Brixen) and in the valleys of the Tauern mountain range of East Tirol, is still to be found the old "longcoat" made of coarse cloth, called "Loden;" it is worn on festive occasions by the men. In the by-valleys of the Tirol the men wear almost exclusively a short coat, mostly without collar, also made of grey or brown Loden. As for the rest, the costumes in every valley have their own peculiarities which often result in the most curious shapes (pointed hats, etc.); Carinthia and East Tirol have special costumes of their own. The mountain districts of the north-east of Carinthia are influenced by the national costumes of Styria and Upper Austria. In the Bregenz Forest in Vorarlberg women wear jackets made of closely folded glazed linen; only the sleeves of these, the embroidery round the open collar and the belt follow the fashion. Girls and brides wear a bridal crown adorned with gold spangles, the so-called "Schappale." Married women prefer a pointed woollen coif or a fur cap in winter and a straw hat in summer. The old national costume of the men, which had nearly disappeared in the Bregenz Forest, is now worn again at festivals. In the Montafon valley the costume of the women is very pretty; they wear richly decorated bodices and small bridal crowns and make ample use of silk. In the Walser valleys, too, women still cling to their old national costumes.

HOLLAND

When in doubt, go to Holland. Here is a country which is so close to our own that the cost of getting there is reduced to a minimum and practically all your holiday budget is spent abroad. Furthermore, you get your money's worth, whether it be in interest, in colourful beauty or in the attention the Dutchman pays to your inner man. Complete change is the essence of a good holiday and a complete change in diet is the most important change of all, especially when it is coupled with the generous measure with which meals are served in Holland, the result no doubt of the keen, clean air which penetrates even the big towns and creates rollicking appetites. No "Continental breakfast" here, but a huge basket filled with every conceivable variety of bread, enormous pats of butter, cheese, jam and masses of fruit. And every town produces its own speciality of bun.

Imagine a porter in an English station working in a white linen jacket. Why not?

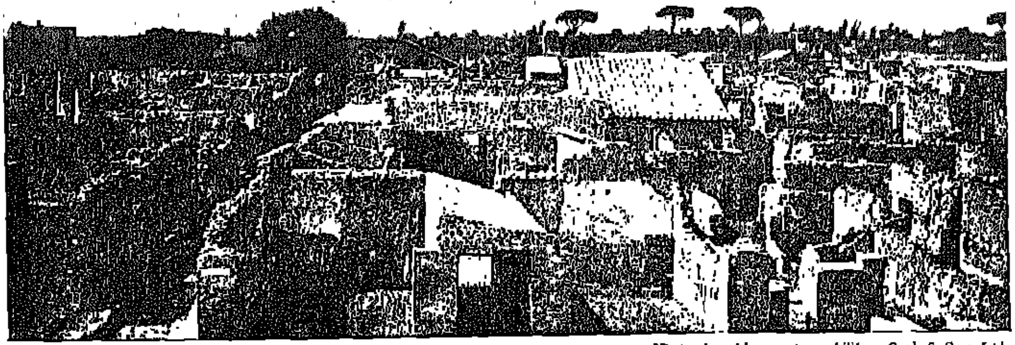
In Holland, thanks to the electric trains, he keeps it spotless. What is more, he speaks English, as does everyone who caters for your comfort. And this brings me to another reason why Holland gives such good value for a holiday. The country is so compact that long railway journeys are unknown and a season ticket, for (say) eight days, is thrown in free of charge in your inclusive fare. You never tire, in your short railway journeys, of gazing at windmill-land, or bulb-land, if you go in April when the bulbfields form a patchwork quilt of unimagined beauty, varied by the silver streaks that divide the coloured masses.

A returning visitor once asked me if the quaint costumes worn in Volendam and Marken were not assumed just to attract the tourist. Of course not. They are the everyday wear, winter and summer alike, of the people and as natural as the quaint old houses which happily survive, not only there, but everywhere in Holland; as natural as the serried rows of chubby children, dressed in every colour of the rainbow, seated at gaily coloured desks in some delightful old building which houses the school in any village. You will never tire of those old buildings, often mirrored in the placid water of a lake, set like a jewel in a square, or of a canal. The modern buildings, too, are full of interest and the water-born traffic a never-ending delight, especially when you watch it from a seat in an open air café. The picture galleries will enthral you, even if till now Dutch art has been a closed book, for a charming lady guide will bring each masterpiece to life and give it greater beauty —in perfect English.

You can tour Holland by rail with your season ticket or join a motor coach tour which will relieve you of any planning. You can travel by an English steamer by night from Harwich to the Hook or by a Dutch steamer by day from Harwich to Flushing, whilst a very inexpensive route is via Greenwich and Dutch boat direct to Rotterdam. But, however you travel and wherever you go, you will enjoy a holiday in Holland.

ITALY

A holiday in Italy should be in the nature of a pilgrimage, for here history lives. Here are treasures of architecture, of art and craftsmanship, unsurpassed in the world. Here we can trace the progress of civilisation from the days of earliest Rome up to the present time. Here art is native and a tradition, so that even the commonest objects are invested with a beauty that is



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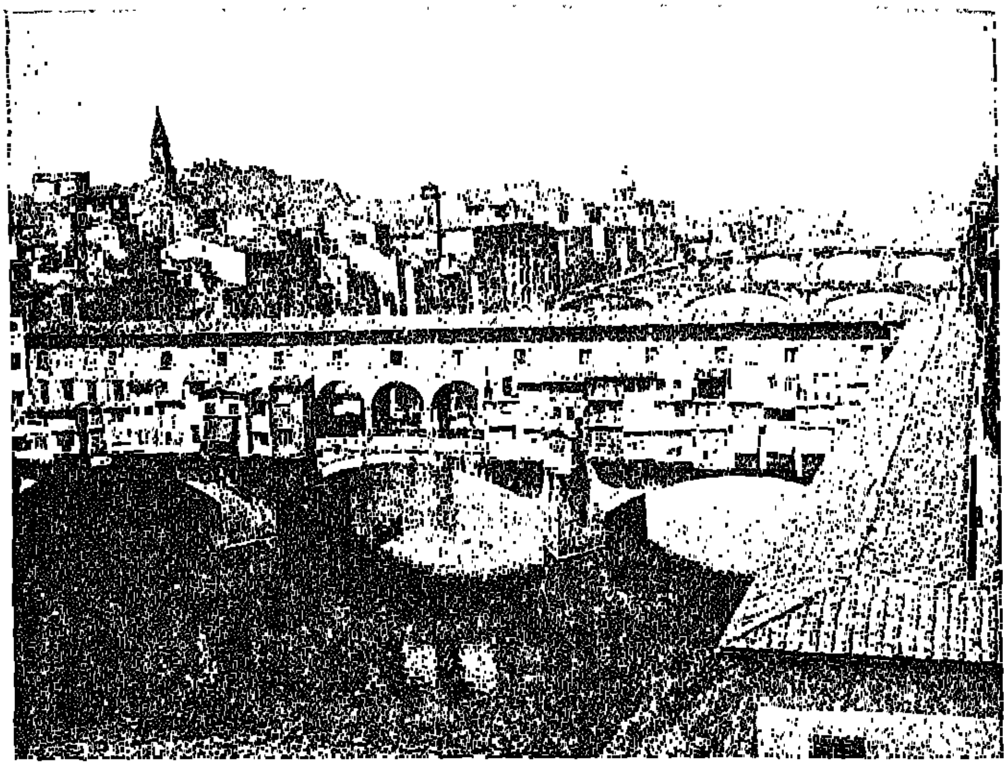
POMPEII



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FLORENCE—THE PONTE VECCHIO

inspired. But there is something more. Proud as they are of their splendid monuments, their pictures and their craftsmanship, the Italians to-day can look at a new and reconstructed Italy: great factories which produce all that the country requires; great *autostrade*, motor roads which set a pattern for other nations; and a people, once largely agricultural, who are now imbued with energy and a vitality which is a joy to witness.

You should be prepared to see this dual feature in Italian life. Where in England can we point to a railway station with any degree of pride? In Milan, the magnificent building where the traveller leaves his train deserves almost the same careful study as that poem in stone, the cathedral. Lack of coal has brought into being great installations, which transform the energy of mountain torrents into electric power for commercial use. A new Rome is rising, like Phoenix from its ashes, with this difference, that old slum buildings cleared away reveal an ancient Rome long hidden and now restored to sight. New housing for the artisan goes side by side with preservation of the ancient town.

Practically every approach to Italy by land is through magnificent Alpine scenery. From France by the Mont Cenis tunnel, from Switzerland by the Simplon and St. Gotthard tunnels, from Austria by the Brennero. You should try to arrange your itinerary so as to pass over the Alps by day; you will be entranced by the loveliness of the scene, filled with admiration for the skill of the engineers and amazed that so long a journey can pass by in seemingly so short a time.

If your objective is scenery alone, stay at any little village in the Alps. You are certain of good accommodation, excellent food and marvellous walks. The Italian lakes, Lake Maggiore, Lake Como and Lake Garda, are too well-known to need recommendation. But the Dolomites, on the Austrian border to the north of Venice, are often overlooked. These coral mountains are of a loveliness not to be described and compel the traveller who knows them to return again and again.

For history, you will go to Rome—and do not miss the service in St. Peter's, the greatest church in the world; to Paestum, where four temples date from the sixth to the second century B.C.; to Pompeii, where you can wander amongst the houses and courts of ancient Romans and see how they lived their everyday lives; to Ravenna, where the Byzantine rulers held their court, where Dante sleeps.

Florence is the great city of the Renaissance, filled with innumerable treasures of architecture, painting and sculpture, and lovely beyond compare. Pisa, Genoa and Venice and scores of smaller towns are rich in history and art. For shopping, go to Florence. There are lamp shades which surpass any we have ever dreamed of, and copies of ancient velvets, damasks, and brocades. Their Christmas cards are exquisite; tooled leatherwork a joy, and painted wooden objects tempt the lightest pocket. Embroidered linen is delightful.

Venice one associates with glass—and the famous factory should not be missed—whilst beads and necklaces, handbags, lace and embroidered linen are almost irresistible.

But above all, if you are to visit Rome and Florence and the lovely hill towns which lie between the two, you must read history. I do not imply that you must necessarily read through the *Decline and Fall* from cover to cover, though you may want to do so afterwards, but that you should get firmly into your head a clear outline of the trend of events through the history of Ancient Rome and that of mediaeval Italy. With those facts in your mind, you will see with understanding eyes, and bring back a fund of memories and stories which will last you, and your listeners, a lifetime.

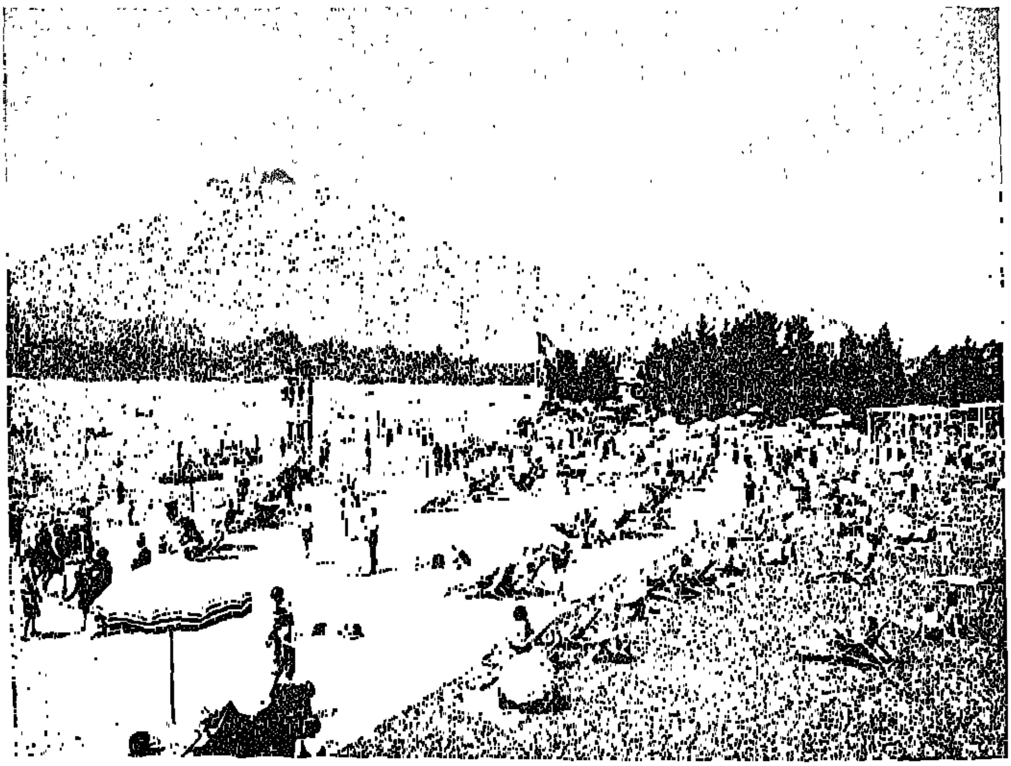
SWITZERLAND

Switzerland should be renamed Holidayland, for almost the whole country looks upon the holidaymaker as its livelihood and there is hardly anyone who has not cherished the ambition to see the snow-covered mountains and lovely lakes for which it is so justly famous. To the tired and jaded mind, weary of drab and commonplace surroundings, the transition overnight to such a country is a marvellous tonic. There is no finer experience than to step out of a train at, say, Lucerne, on a bright and sunny morning. Crossing the station square to the lakeside, one stands spellbound at the sudden revelation of Switzerland in all its loveliness, a broad expanse of lake, dotted with the sails of yachts and white hulled pleasure steamers, the green slopes of the Rigi mountain on the left, the rocky mass of Pilatus on the right and, straight ahead and beyond, peak after peak of snow-covered mountains reaching up into the blueness of the sky. It is holiday enough to stay there and let it all soak in. Yet Lucerne has much, much more to offer and Lucerne is only the introduction to beauty hidden in the hills.

In planning a holiday to Switzerland it is possible to pick almost any place at random and be certain of a good time, but there are considerations which it is wise to bear in mind. The resorts can be divided into two categories, the lakeside resorts and those that are up in the mountains. The former are usually chosen for a first visit, and wisely so, for the larger and better known places are well equipped with hotels, have properly organised places of entertainment with every facility for swimming, tennis and golf, and are unrivalled as centres from which to make excursions by lake steamer, mountain railway or motor coach. All this, however, merely serves to whet the appetite and sooner or later comes a desire to reach out into higher altitudes and spend a holiday amongst the loftiest mountains of all. Then it is that the resorts in the Bernese Oberland on the slopes of Mont Blanc and in the Engadine make their appeal.

The larger lakeside resorts, such as Lucerne, Lausanne, Montreux, Geneva, or Zurich, have much in common. Hotels there are to suit every purse and taste, from the luxury hotel, set in its own parklike garden on the lakeside, down through a gamut of first and second class hotels to the humbler pension, where the same spotless cleanliness and good food is to be found at less than half the price of the more pretentious establishments. Of course the higher prices bring definite advantages, in situation, accessibility and general amenities, and if you expect a magnificent view from your bedroom window you must choose the higher priced hotel and pay the medium or top tariff of that hotel. The cheaper hotels or pensions in a large town are apt to be situated in a street where there is no view or it they have a view, they are perched upon the hillside, involving a stiffish climb at the end of a long day's excursion. But these are small disadvantages to most people, when the economy they allow leaves a bigger fund available for excursions and entertainment.

The cheapest excursions are provided by a weekly season ticket on the lake steamers, sometimes included in the advertised fare for the tour. This opens up possibilities of a full week's enjoyment, visiting the tiny places on the shores of the lake, and it must be realised that the lakes of Lucerne, Geneva or Zurich are large enough to provide a different objective, or even direction, each day. From Lucerne, for instance, the steamer can be taken on one day to Vitznau, where a mountain railway climbs up the slopes of the Rigi to the very summit. Here you can



[Reproduced by courtesy of Thos. Cook & Son, Ltd.

LUCERNE

lunch and take your fill of good food and a magnificent vista of snow-clad peaks stretching half-way round the horizon. You may feel energetic and do the downward journey on foot—and great will be your reward. Kehrsiten, on the opposite side of the lake, can be your next excursion, with access to the Burgenstock and most charming walks, on the level, along the Felsenweg, a rocky path just below the summit of the ridge. Fluellen, at the far extremity of the lake, is a delightful trip and restful, because you need never leave the steamer but sit lazily on board whilst the ever varying panorama of lake and mountain, village and villa, field and trees, drifts silently by. Or you can go round into another arm of the lake (which is cruciform in shape) and climb Pilatus or the Stanserhorn, or visit Küssnacht, with its memories of William Tell.

Geneva, Montreux and Lausanne afford similar opportunities for excursions on the Lake of Geneva. Zurich has a lake all to itself, whilst Interlaken, as its name implies, lies between two lakes, the Lake of Thun and the Lake of Spiez. It is unrivalled as a centre for visiting the Bernese Oberland or climbing the massive bulk of the Jungfrau —by the highest mountain railway in the world. Lugano, on the south, or Italian, side of the Alps, has three lakes within reach, Lake Lugano, Lake Como and Lake Maggiore, the two latter being also in Italian territory, whilst Milan, with its famous cathedral, is within easy reach. If you can take an Easter holiday, or must go late in the summer, take my advice and go to Lugano, for Lugano is ideal when it is still too early, or already too late, to visit the cooler places north of the Alps.

From all these centres motor coach tours open up wonderful possibilities of seeing the country. To name but a few of the longer runs, no one should miss the whole day excursion from Lucerne up the lovely St. Gotthard valley to Andermatt, thence over the Furka Pass (8,000 ft. up) to the Rhone Glacier, returning over the Grimsel Pass, the Gorge of the Aare and the Brunig Pass. Another long ride crosses the frontier into Germany to visit the Black Forest and includes Zurich and the Rhine Falls. From Montreux, again omitting mention of the shorter trips, it is possible to climb by motor coach up the Great St. Bernard Pass and actually visit the famous monastery, under the guidance of the monks themselves, who invite visitors to inspect their quarters and the famous dogs in the kennels. From this point there is a magnificent view down the valley of Aosta into Italy. Lugano offers trips into Italy itself, to Milan, or over the Maloja Pass to St. Moritz, in the Engadine.

To many people, however, a round of sightseeing does not constitute a holiday. For them tiny lakeside resorts, some consisting of a small hotel and a few villas only, provide a paradise on earth. A daily swim in the lake, perhaps a game of tennis (you must inquire if tennis courts are available) and an endless variety of walks and climbs will fill each day, with steamer trips as before on the lake. I do not name these places—they can be found in any travel agent's summer programme.

The mountain resorts are quite different in character. Their greater altitude, high above the lakes, imparts a feeling of exhilaration, whilst it is with a sense of awe-inspiring emotion that one dares to live in such close proximity to the snow-capped giants which stab the sky. I well remember my first visit to a mountain hotel. The manager, whilst welcoming us on our arrival, apologised that he could not give us a room at the front of the hotel, looking down on to the lake two thousand feet below. Stifling our disappointment we followed him upstairs and into a room on the farther side. Throwing open the window we stepped on to the balcony and gasped in amazement at the vista of snowy peaks, piled one above the other in glorious majesty, whilst below and between lay a peaceful valley, verdant green, whence came the constant tinkle of deep noted cowbells, a melody which would greet our waking ears each morning of our stay. We liked that view far better than the view on to the lake, and ate our breakfast on the balcony—crisp rolls and butter and cherry jam (you must taste that cherry jam) and great cups of chocolate. We walked for miles that holiday, played tennis, golf (a splendid nine-hole course) and, in the evenings, ping-pong; a season ticket on the funicular railway took us down to the lake for bathing every day. The lake water is very cold and nowadays the hill resorts have swimming baths—open air, of course—where the water is much warmer.

Switzerland is unique in having three official languages. French is commonly spoken in the south-west part of the country, around Lake Neuchatel and Lake of Geneva and the Rhone Valley. If you wish to brush up your French, select resorts there. It is surprising how much you can absorb, unconsciously, hearing French spoken, seeing all the signs and notices in French, even if you do not speak it. South of the Alps, at Locarno and Lugano, Italian is the language of the people, whilst everywhere else German is the tongue, written as in Germany but pronounced in their own special way. English is, however, spoken everywhere.

Railway travel is most comfortable and, like everything else in Switzerland, spotlessly clean. The first and second class carriages are in compartments like our own; the third class coaches are long open cars with wooden seats moulded to fit the body, and quite comfortable. The windows are enormous, naturally, for no one wants to miss the view, and smoke does not exist, electric engines hauling every train. The mountain railways have only two classes, second and third. Their carriages are more like trams, with seats arranged in steps, one above the other, for climbing up steep mountain sides. Supplementing the railways and lake steamers are the Swiss Postal motor coaches. They are comfortable, skilfully driven and afford an admirable means of seeing the country.

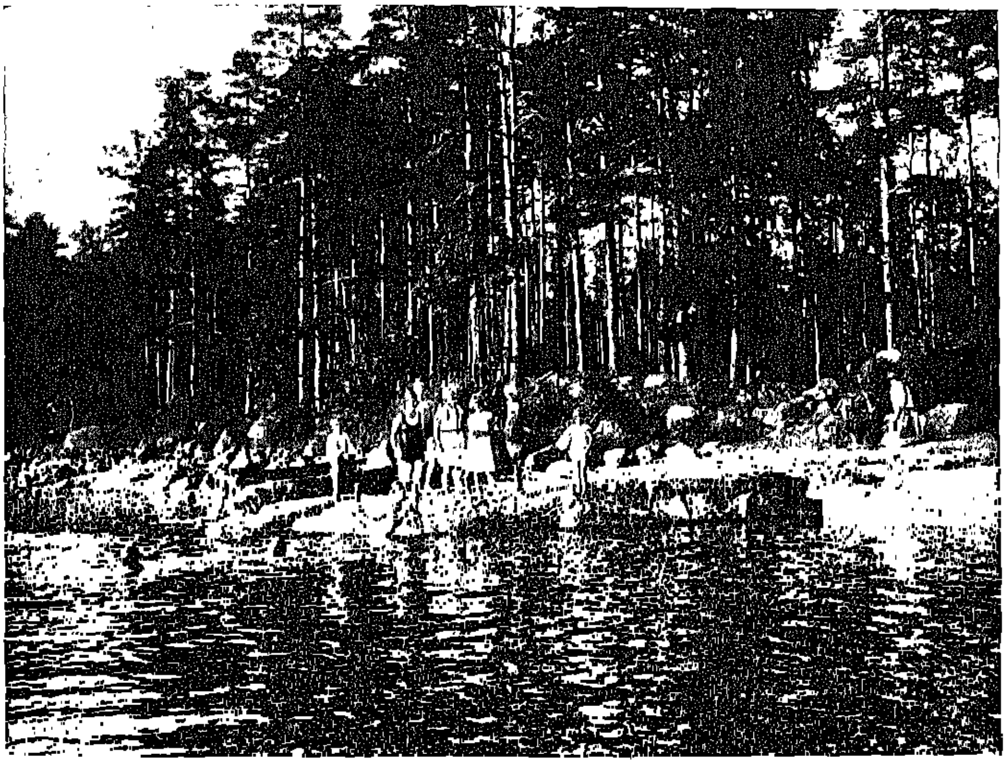
To reach Switzerland, through trains travel from the English Channel ports direct by many routes and divide on reaching the country, so as to provide through carriages without change to all the principal centres. For instance the "Rhone Valley Express" goes direct from Calais, via Paris, to Lausanne, Montreux and Brigue, covering the Rhone Valley and Mont Blanc resorts. Another train, this time from Boulogne, travels via Laon, Rheims and Basle to Lucerne, then through the St. Gotthard tunnel (a very lovely journey) to Lugano. Part of this train travels via Berne and then to Interlaken, and another carriage goes via the Loetschberg valley to Kandersteg and Brigue. Still another leaves the main train at Basle and proceeds to Zurich and Coire, with connections to Davos, St. Moritz and the Engadine district. There are through carriages from Ostend and Dunkerque, both in connection with steamers from Dover; and a luxurious Pullman car train, the "Rheingold Express," runs from the Hook of Holland after arrival of the night boat from Harwich, through Germany to Basle and Lucerne. Travelling by day this train runs for some hours along the banks of the Rhine just where it is most beautiful, gives a glimpse at Cologne Cathedral and touches the fringe of the Black Forest.

Finally if you find it difficult to choose, your travel agent can supply you with illustrated leaflets on all and every resort. Hundreds of these leaflets are printed, any one of which is calculated to tempt the angels themselves out of Paradise. So, be an angel and go.

OFF THE BEATEN TRACK—FINLAND

Do you ever wish that you could explore some unknown land, penetrate a virgin forest, sleep to the music of a waterfall and, waking, plunge into the cool waters of a lovely lake? Do you wish for peace, for absolute silence, as a cure for overwrought nerves and weary brain? But do you still need comfort and is economy imperative? Then go to Finland. Finland is fairyland come true. Everywhere there are lakes and streams, set in the midst of birch and fir forests. Little steamers, as clean as the proverbial new pin, glide over their waters, setting you down at night at a tiny hotel, staffed—and this is really interesting—by Finnish university students, young men and women who thus find means of practising the languages they study in term. Swimming, boating or walking by the rapids that connect the lakes, or even shooting them, day by day you bask in glorious sunshine and breathe an atmosphere that sparkles like cut glass, invigorates like wine and sets your pulses dancing.

Cold? Never, in summer, for the sun works overtime. With twenty hours sunshine a day for four months in the year it would be hot were it not tempered by sea and lake and the cool forest shade. Go north to Finnish Lapland and the sun never sets. But wherever you go you find a people progressive, cultured and hospitable, hotels scrupulously clean, though often small, and unbounded possibilities for a quiet holiday, at once interesting and thoroughly enjoyable. Above all, the present rate of the Finnish exchange makes Finland perhaps the cheapest country in which to spend a holiday.



[*Photo: W. W. Balls.*

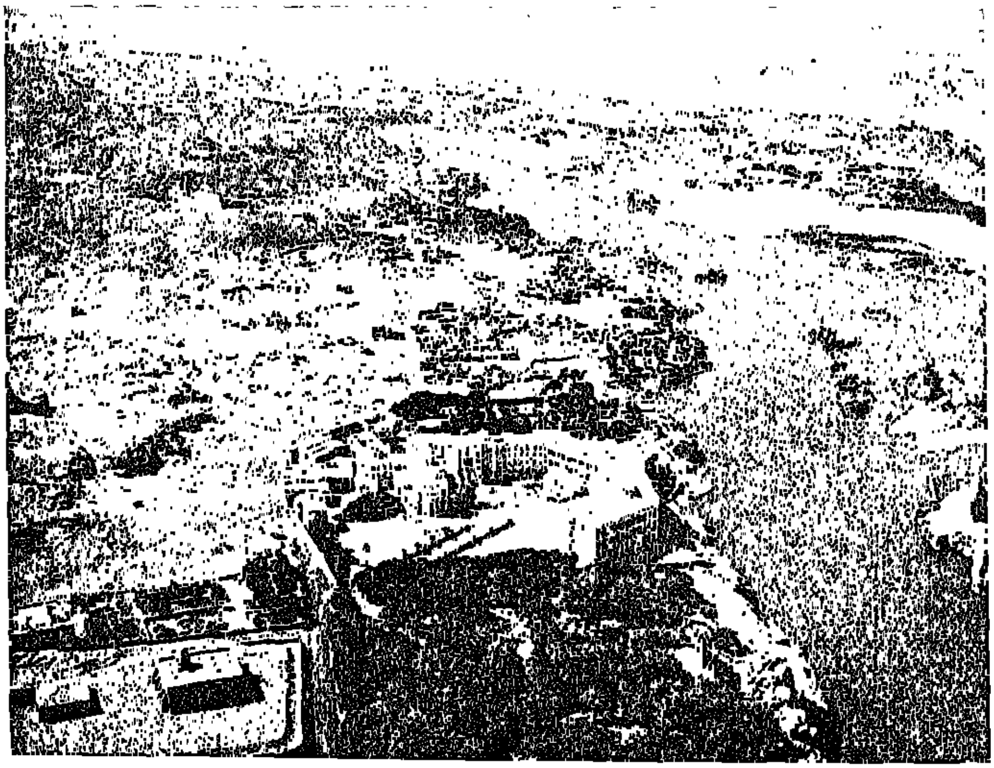
FINNISH BATHING PLACE—KOTKA, ON THE GULF OF FINLAND

For a first visit it is best to travel by steamer from Hull. The journey to Helsingfors occupies four days (six nights), one night and a morning being spent at Copenhagen, time enough to get more than a glimpse of that lovely city. Both classes, first and third, are suited to English travellers and the restful sail through the landlocked seas—the Skager Rack, the Kattegat and the Baltic—is a delightful part of the holiday. The steamers leave nothing to be desired and a bathing pool adds to the pleasures of the usual deck games. You must, however, book early, taking care to secure your berth for the return journey, for this "unknown land" is not unknown to the connoisseur, and in holiday times the steamers are always full weeks in advance. Take the same clothes that you would for a summer holiday in England, with an overcoat for wear in the evenings on board steamer. It is not customary to dress for dinner. Your passport will have to be endorsed with a Finnish visa.

If you are interested in fishing or yachting, or wish to take your car or bicycle, your travel agent will give you all the details. With him also you can discuss the alternative routes: to include Stockholm, the Gotha Canal and Gothenburg; or Estonia; or by air all the way. There is no difficulty—that is a word unknown in Finland.

EGYPT AND PALESTINE

It is not generally realised that Egypt and Palestine can be visited most inexpensively in the summer. The high steamer rates which apply in the winter are replaced by cheap "off season" rates, whilst hotel prices and sightseeing costs are much lower. There is the advantage also that the Atlantic and Mediterranean are on their best behaviour, so that smooth seas and blue skies are guaranteed. It will be hot on shore, of course, but rarely is the heat oppressive—rather does it add to one's experiences. Egypt is the land of palm trees but it is not tropical. Sun helmets are not necessary



[Reproduced by courtesy of the Egyptian Army Air Force.

CATARACT HOTEL, ASSWAN

for a short stay in Cairo, though advisable if a trip to Luxor and Aswan is made. They can be obtained very cheaply on the spot.

The sea journey usually takes twelve days in each direction, though it may be halved by travelling overland to Marseilles. In a summer holiday twenty-four days are spent on the restful sea voyage, calling at various ports, and the sailing dates normally permit five or, say, twelve days ashore. In five you can visit Cairo very thoroughly, including the Pyramids and Sphinx, the Museum of Antiquities, where all the Tutankhamen treasures are exhibited, the mosques, bazaars, and even a trip to Sakkara, to see the very lovely tombs. Alternatively, you can go up to Luxor, travelling by night train each way (it is 450 miles from Cairo), taking two days there to see the Luxor and Karnak temples and crossing the Nile to visit the Tombs of the Kings at Thebes; the Cairo sightseeing can then be compressed into two days, as Sakkara will not be necessary.

In twelve days, Jerusalem can be included, with visits to Bethlehem, Jericho and the Dead Sea, and even Nazareth and Mount Carmel.

For visiting Luxor, special combined railway, hotel and sleeping car tickets are issued from Port Said during the summer months at very advantageous rates. They allow break of journey in Cairo but do not include hotel accommodation there. Sightseeing is not included, nor is the Government tax for visiting the antiquities, but these items can be arranged by a travel agency which has offices in Egypt.

At present no such tickets are on issue for Palestine, which is consequently more expensive to visit. Nevertheless it is surprising how the cost can be brought down, especially when three or four friends travel together. Remember that in these countries there are no motor trips or collective sightseeing parties. All sightseeing and motor car travelling is done privately, so that it is a real advantage to be able to divide the cost of a car and dragoman (or guide) amongst several.

WINTER HOLIDAYS

The most important factor in any holiday is the weather. The best-laid plans go wrong when rain or grey skies interfere with our enjoyment. We invariably hope for fine weather and plan to take our holiday where we feel we are most likely to get a maximum of sunshine. But summer at home is usually sunny and a holiday on the Continent does not necessarily provide a guarantee of good weather.

How marvellous it would be if we could transfer a fortnight's summer sunshine into mid-winter, break into those dull depressing months by a holiday in sunnier climes! To do so is a most amazing tonic, coming just when the body needs it most. That is why so many now take a winter holiday abroad and content themselves, if need be in the summer, with tennis, golf, picnics and the usual round of summer life at home. No one who has once escaped from our murky winter skies into the brilliant sunshine of happier lands will rest content until he has repeated it. A summer holiday fades into insignificance besides the swift transition from fog and sleet to clear skies, sunshine and the incomparable joys of a winter holiday.

For generations the Riviera held pre-eminence, partly because it is only twenty hours' easy journey from London, and partly because it is so complete a contrast from anything we have at home. Contrast is the essence of a holiday and there can be no finer contrast than boarding a train at Calais on a chill December evening and leaving it the following morning in a land where brilliant sunshine, blue skies, bluer sea, palm trees, mimosa, hotels and casinos, white buildings and coloured shutters are the order of the day. In days gone by the Riviera was looked upon as the playground of the rich. Nowadays that is all changed. Thanks to the organisation of the travel agencies, a fortnight on the Riviera in winter costs no more than any other holiday. There is an amazing range of resorts, from the large well-known places like Nice, Monte Carlo and Cannes, to the small, quiet village by the sea.

But the holiday of holidays, to all young people on the right side of seventy, is a winter sport holiday. Switzerland, Austria and the Alpine resorts of Italy have brought the art of winter holidaying to such a pitch of perfection that the hotels in the mountain villages now look on the winter season as being more important than the summer; and with good reason, for a jollier, happier crowd than that which fills every Alpine hotel in the winter is hard to imagine, whilst the enthusiasm with which they go out in search of healthy exercise would be impossible on a languid summer day. If Switzerland's principal imports are tourists, its exports are certainly good health, high spirits and a store of exciting adventures, whose recital must make the remaining winter evenings fly like magic.

My first winter sports holiday was taken, not with the idea of taking part in the sports—thirty years had passed since I last wore skates—but more as a voyage of discovery, to see for myself what such a holiday was like. Our first morning revealed a land of dazzling whiteness, a cloudless blue sky and pure, unadulterated sunshine that invited us to hurry over a breakfast of hot chocolate, crisp rolls and delicious cherry jam and join the noisy crowd that chattered on the terrace. Our only equipment was a pair of rubber snow-shoes each, an absolute essential for walking on the snowy paths. Donning them, we sallied forth, taking deep gulps of the crisp, sharp air, and walked to the tiny station, where scores of skiers were loading their skis on a truck and taking their seats in the tiny mountain train which was to transport them up the slopes a thousand feet above. They left, and as our eyes followed their progress upwards we saw the first early batch come flying down, some fast, some slow, into the village, along its street and to the station, where skis were unstrapped and placed in the waiting truck and off they went again. A weekly season ticket allows as many journeys up the mountain railway as can be crammed into seven arduous health-giving days, with downward runs on skis as fast as ever-growing skill can make them. How we envied them, little thinking that we too would soon share in these delights. We turned away, following a group of lugers on tiny sledges who careered down the street, turned into a narrow path and disappeared down the slope into the valley beneath. It looked very easy and we made a mental note to join them later.

But first we would see the skating. A rink, two or three acres in extent, lay just below the hotel. One end was marked off into long rectangles, where groups of men, with mats, brooms and curling stones, were playing what was nothing more nor less than bowls on ice. That looked easy too, and so it proved, when later we joined in. But at the moment the skaters proved the great attraction. We walked around, sat on the seats at the edge of the rink, revelling in the sunshine and the graceful movements of the crowd of skaters. Somehow, near a pavilion where skates were being fitted, I missed my companion. Casually I asked if skates could be hired and almost without realising it found myself fitted out, upright on the ice and feeling my way cautiously along the edge within reach of the chairs. One or two falls served only to increase my confidence and soon I found I had completed the circle of the rink, walking more than skating. Then a firm hand caught my arm and a quiet voice said, "Let me show you how," and in a flash, obedient to that quiet voice, my weight transferred itself from one foot to the other, my strides lengthened, and behold, I was skating, to the rhythmic counting of my instructor. "Would I like a lesson?—it would only cost 2s." One look into the kindly face was taken as consent. He was a mountain guide in the summer, he told me, but nothing could increase the confidence I had in him. Then came the strains of music and, to my joy, I managed to fit into its rhythm and realised the pleasure

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KLOSTERS, SWITZERLAND

skating gives. Then I was alone, no longer at my ease, but feeling there was at least a standard to which I could attain—and there was my companion, who had done the same. Two more lessons and we were quite at home on ice, skating easily and happily and even practising the "outside edge." How lovely it all was!

A week later we, who had come to Switzerland to watch, were already good skaters, quite experienced lugers and had several curling matches to our credit, whilst dancing, impromptu concerts and even professional entertainments made the evenings fly. But ski-ing seemed a long way off. Then arrived an "initiation party" from London and by special dispensation we were allowed to join. We hired ski-ing suits and boots, and spent a happy morning having skis fitted before shuffling through the village, "just to get the feel." Then out on to the nursery slopes and, under the guidance of our instructor, we learned to ski. In turn we took short runs, learned how to fall, recover, climb and turn, until within the week we could go long, easy expeditions. Never was there such a jolly class nor such a competent instructor, making it easy for the worst among us, whilst the keen air, warm sunshine and constant exercise made our cheeks glow with health and happiness.

Reluctantly we left our friends, making a resolution to return next winter and join the initiation party for the whole fortnight of our holiday. We could, as an alternative, choose another resort which runs a ski school. These schools are well organised under a competent instructor, and cater not only for the novice but for those who have already progressed in varying degrees. Competitions are arranged and badges awarded to those who have passed the different tests.

HOLIDAYS AT SEA

Cruises.—Sea holidays have always been popular with English people and cruises in large liners are no innovation. They were regular features of holiday travel thirty years ago. It is only in recent years, however, that the scope of the cruise, once restricted to those who could pay luxury prices, has been widened until it falls within the means of all. There are now cruises of every conceivable type, from the winter round-the-world voyage on an Atlantic liner to the week-end cruise on a cross-channel steamer, as, for example, to Havre and up the river Seine to Rouen, or to the Belgian and Dutch seaside resorts and ports. Very jolly these short trips can be.

Many reasons lie behind the popularity of holidays at sea. The novelty of it appeals to all. I must confess that, after twenty years of travelling, at times by sea, the prospect of another voyage always thrills me. When we lived in Egypt, my wife and I looked upon the sea voyage to and from England as the best part of our holiday, although we knew every port by heart. We still talk about those trips, the boats we travelled on, the people we met, the deck games we played, the meals we ate. For there is no doubt that on board ship one's appetite is enormous, the result, of course, of breathing the pure air, which stimulates even when the day is spent quietly—reading or talking in a deck chair, walking round the decks, or watching the games, the competitions and the fascinating life of a ship at sea. To those who have to take a holiday alone and know how lonely one can be in an hotel, the friendliness of ship life is a revelation. It is the easiest possible thing to make friends; indeed, a turn round the deck before breakfast brings a cheery "good morning" from many a fellow passenger, whilst you can hardly watch a game played without being drawn in. Introductions are automatically dispensed with, and the games committee, composed of a few energetic souls, ropes in everyone who cares about playing. It does not matter if a timid passenger "does not know how." Half the passengers are equally ignorant but most of the games are so easy that there is nothing to learn. In the dining saloon no one is ever condemned to sit in solitary state at a "table for one," as in an hotel dining room, for although the old-fashioned, long tables have disappeared from most ship's dining saloons, the small round tables are inevitably booked by family parties and the single traveller finds himself at a larger table where conversation flows and friends are made. Personally, I would choose a sea holiday for the baths alone. To wallow in a deep hot salt water bath twice a day is a luxury unobtainable on shore and a great tonic. A friend of mine takes a sea holiday every year because she finds that salt water baths are better for her rheumatism than any other treatment—and they are thrown in free of cost, whereas hotels, on the Continent at any rate, impose an extra charge on those who wish to keep clean!

Most travel agents publish a list of cruises. Such a list shows at a glance all the cruises by all the lines, usually arranged in date order and giving the name of the ship, its tonnage or size, the number of days of each voyage, the countries visited and the port of departure—an important point, because the cost of travelling to and from a distant port adds materially to the fare. The cost of the cruise is indicated by a fare which is the minimum or lowest price, but it must be borne in mind that this applies only to the least desirable berths on the ship, and that prices of better berths may be much higher. The list is not intended to give details of all the prices. Its purpose is to enable the prospective traveller to make a selection which fits in with his requirements—date of departure, duration and countries visited.

The duration of the cruise is the principal factor, for it is obviously linked up with the cost. The shortest cruises are those on cross-Channel steamers to the Channel ports. They form a good introduction and a week-end can be spent most enjoyably in this way. For those who have a week to spare but wish to take an inexpensive holiday, I have a special tip: travel by liner from London to Hamburg, one of the most delightful of many delightful towns in Germany. It is not generally known that liners from South Africa, India and the Far East occasionally proceed from London to Continental ports to discharge cargo. Passengers are accepted in the summer months and these trips are so well patronised that representatives of a tourist agency travel on board to organise shore excursions at the ports. These calls vary according to the destination of the cargo but usually include such ports as Antwerp, Rotterdam or Amsterdam and even Oslo. Most steamers return to London but some travel round to Liverpool, or Glasgow, whence passengers proceed by train to London or to their homes elsewhere. In any case the travel agent will give an inclusive fare.

A variant can be found in the "banana" ships which sail from Liverpool all the year round to Madeira, the Canary Islands, Morocco and Lisbon. This trip, however, occupies three weeks.

The cruise proper, on a large liner specially detached from its regular ocean service for the purpose, usually lasts two weeks and upwards. In two weeks a cruise can include the Baltic ports (Copenhagen, Stockholm, etc.), or the Norwegian fjords, or Madeira and the Canary Islands, or the western Mediterranean (Algeria, the Riviera, Naples, etc.). In three weeks Venice, Corfu and the beautiful Dalmatian coast can be visited, or alternatively Greece and Istanbul, or Egypt and Palestine, or northwards to Iceland, Spitzbergen and the Land of the Midnight Sun. For those who take a winter holiday there are further alternatives, to sunnier climes. The steamers employed on these cruises are liners varying in size between 13,000 tons and 25,000 tons. Speaking generally, the larger the steamer the higher is the price of the best cabins and even of the medium accommodation.

The choice of a cabin is an art in itself. The experienced traveller can sum up a ship as soon as the plan is unfolded and tell the agent almost at a glance the cabin that he would like; or, better still, will indicate to him the numbers of several cabins, any one of which would be acceptable to him. The agent can then use this information and, provided the order is not given too late, obtain a cabin similar to one of those mentioned. But this is the ideal and only too often the would-be traveller has no idea of what he requires and a cabin is reserved which eventually proves unsuitable. What is this selective faculty that the old hand possesses? Cannot it be extended to those who have never even seen a ship? The answer is simple—it is merely commonsense, based on a knowledge of the general arrangement of cabins, and that knowledge can be acquired and used to advantage by the veriest tyro who will pore over a ship's plan for half an hour before visiting the agent. Make a preliminary visit, by all means, to get a list of cruises. But do not be content with this list or with the pretty pictures in the programmes. Remember that the ship is to be your home for the duration of your holiday and the position of your room, or cabin, can play an important part in your enjoyment. So bring away at least one programme that contains a plan, or alternatively, ask for a plan of a cruising steamer—any one will serve your purpose. When you have got that, your holiday will have begun, for that plan is a very fascinating document indeed.

A steamer, you will see, has several decks and each has its function. Their names vary according to the fancy of the company and not infrequently they are lettered, "A" usually, but not always, being the top deck. The topmost deck is probably called the sun-deck, for it is open to air and sun, and there most games are played; the only cabins are those of the navigating officers. Next comes a deck with a lounge, writing rooms, smoking rooms and so on, with possibly a large open space between where dances are held, the whole surrounded by a wide promenade. The forward half may be enclosed by windows and this is particularly useful when cold weather may be expected, as when going north to Norway or Iceland, or when steaming fast into the wind, as on the Atlantic. The third deck may be devoted to cabins surrounded by a narrower promenade. These are the highest priced rooms, apart from those with private baths, for which a supplement is charged whatever their location. As they do not look out on to the actual side of the ship, they have large square windows and are roomy. Access is obtained by interior corridors and the public bathrooms and toilets are arranged in separate groups for men and women. It is convenient to be close to the particular group you require but not so essential as is sometimes imagined.

The deck beneath, often called the upper deck, has no promenade; the cabins are flush with the side of the ship and consequently have port holes instead of windows. These cabins are, on most ships, of two categories: those that are square, and others which are placed inside but have a short corridor leading to the port hole in the ship's side, to give light and air. These latter are called Bibby cabins, because the Bibby Line was the first to introduce the arrangement. Older ships are sometimes met where the inside cabins have no such corridor and consequently must rely on electric light even in day time for illumination. Such an inside room is cheaper for this reason, but is not to be despised if you are going to be on deck all day long. It is probably as cheap as an outside cabin down below, but lack of daylight is offset by the advantage of being closer to the games deck—and you can walk miles on a ship going down to a distant cabin to fetch a book or wrap.

The lower deck will have the kitchens amidships and two dining saloons, one forward and the other aft (or behind)—of these more anon. The cabins forward of these saloons are excellent; they are quiet, and being far away from the engines, are free from vibration. The main companion way, or staircase, is situated in the "well" outside the forward dining saloon. In the larger ships there is also a lift—and very useful it can be, especially for those who find many stairs a fatigue.

The cabins aft (or behind) the dining saloons are quite different in character. When the ship is on her normal run these cabins are allotted to second or tourist class passengers. They are consequently smaller, or have three or four berths (instead of one or two) and are less luxuriously appointed. There is apt to be a certain amount of vibration, as the propeller shafts pass beneath, especially on the lowest deck of all, and elderly people should remember that they may have to climb two stairs and walk along a long corridor before reaching the lift; it is wise to plot out these walks on the plan if a cabin is offered in this part of the ship. Those who dislike stairs may consider paying a little more and getting a berth nearer the lift. These cabins, however, have the great merit of being cheap. I stress the disadvantages merely to warn those who can, or should, pay more.

A cabin is of necessity much smaller than a room at home and when it is shared with other passengers ventilation becomes important. Cabins are never situated below the water line but in stiff weather portholes on the lower decks must be closed. To obviate stuffiness the best ships are now fitted with "punkah-louvres," a system whereby fresh air is drawn into the ship and distributed through pipes whose outlets are found in every cabin, corridor and public room. The outlets are under the control of the passenger, who can not only switch the air current on or off, but can turn it in any desired direction, merely by pulling a handle, which is fixed to a ball in a socket in the ceiling. The plan will indicate whether or not the ship is fitted with this system, which is especially desirable when cruising in warm climates.

Of the two dining saloons, when cruising the forward saloon only is usually used, the aft saloon being kept for dancing. Whenever the latter is used, however, it is allotted to those passengers who occupy cabins aft or below it—the cheapest cabins. The meals served on a cruise are of course exactly the same in both saloons but if you wish to be with friends it is as well to make sure which dining saloon you, and they, are entitled to use.

The officer in charge of the passengers' comfort is the purser. He is to be found in an office, with a staff of assistants, where letters from home will be found, notices regarding the arrival and departure at the next port are posted, and so on.

Everything on deck comes under the supervision of the deck steward, who will provide a deck chair labelled with your name, generally takes care of games equipment and serves a cup of hot broth during the morning in cool weather or ices on hot days. The drawing rooms and writing rooms are in the charge of a librarian, who also issues books, free of charge, from the ship's library. This is well stocked, not only with novels but with works of reference and literature descriptive of the countries visited.

Ship's games.—The games played on board ship add considerably to the enjoyment of a sea voyage, not only for those who take part in them but also for those who merely watch. Most large ships set aside the top deck, which is exposed to the sun, entirely for that purpose. There is no doubt as to the value, from the point of view of health, of playing games in the pure air, high up above the sea and in such novel surroundings. The games are novel, and there is the added advantage of the opportunities they provide of making acquaintances, whilst some of them at least are so simple as to require no particular skill or aptitude. Perhaps the easiest consists merely in throwing rope rings into a bucket or on to an upright peg placed a few feet away—quite small children or elderly people can enjoy playing it. Bull board is a variation of this. It is a rectangular piece of board placed on the deck and slightly raised at one end so as to form a sloping surface. Twelve squares traced on it are numbered irregularly and players throw discs or quoits at square number one until successful. They then aim at square number two, and so on.

The disc must fall clear inside the square and scores according to the number, but only in proper sequence.

A great favourite is deck quoits, played with heavy rope rings. Targets are painted on the deck, the circles being numbered 1, 2 and 3—the latter the bull. Each player pitches four quoits, playing alternately, from a base line 25 ft. away. Accurate pitching is rapidly acquired and as the game is usually played in two teams of four and a player can knock his opponent's quoit out, leaving his own *in situ*, it becomes an exhibition of real skill. A quoit which lies on a ring scores the lower number. The game can be played, as in bowls, with a jack, pitched at random.

Shuffle board is just as popular. The targets are more or less like those of bull board but are painted on the deck. Each player has a cue—like a broom handle with a flat crosspiece at the end—with which he propels a wooden disc from the base line on to the target, about 25 ft. away, scoring the number on which the disc comes to rest. As in deck quoits, two can play alone, but usually two teams of four compete, with discs of different colours. The game is so easy that it attracts many who never play games and it must be responsible for more friendships than any other on board ship.

Deck tennis is a more active game and with skilled players can become very active indeed. It is so good a game that it is now played on land as "Tenikoits." A short net is rigged up across a court painted on the deck and divided into four squares. Two or four players stand as in tennis and the server plays by throwing a rubber ring into the court diagonally opposite. Here it is caught by the opponent, who returns it, and so on until one misses, allowing the ring to fall to the ground. The ring must always be thrown upwards, served underhand from below the shoulder and returned in the same way, except that then a spin may be imparted. The skill that can be developed, both in imparting a spin and in catching and returning in one motion a spinning ring, is really amazing. A game between good players is a joy to watch. On some boats a narrow neutral court is marked on either side of the court to catch "net balls." Scoring is either as in tennis or fifteen up. Only one hand is used but it is a good plan to train both and become ambidextrous.

On large ships ordinary tennis can be played, with heavy balls and wooden rackets to counteract the wind and wooden deck, which is naturally very fast. This calls for considerable skill but is all the more enjoyable.

A speciality on Bibby and Henderson Line steamers is skittles, played on the well deck forward, on either side of the cargo hatches. Wooden balls, of varying sizes, are bowled along the deck at ninepins, heavily weighted to stand a swell. It is a glorious game and I have seen a whole ship's company standing around, sitting on the hatches and lining the decks above, watching a competition between rival tables in the dining saloon or a game between Scots and Sassenachs, to the rhythmic accompaniment of waves breaking under the bows and swirling along the sides of the ship, punctuated by cheers as some hefty shot knocks down the last pin or sends the whole nine flying.

You can even play golf, putting a ball on a carpet through a bunker made out of two round wooden discs placed far enough, but only just far enough, apart to allow the ball to pass. Cricket can also be played, on a ship with a long well deck which can be completely netted in, and pingpong flourishes in sheltered spots (don't challenge the Chief Engineer—he is invariably a champion, in his quiet way) whilst an ingenious combination of croquet and golf will while away many a happy, healthy hour.

The swimming pool is perhaps the happiest place on the ship, for the combination of sea baths, sun bathing and pleasant companionship is unattainable elsewhere to the degree experienced on a ship at sea.

The organisation of competitions is handled by a games committee, which is convened the first day out and arranges all details, posting lists for entries, fixing the entrance fees and buying the prizes in the ship's shop (where, incidentally, almost anything can be bought, from tooth paste to "gym" shoes). This committee also arranges a gymkhana, fancy dress balls, entertainments, lectures and so on. Bridge parties, dances and church services are part of the plan, and "pools," on the daily mileage of the ship, a regular feature culminating each day at noon. On a long run these take the form of a guess as to what you think the mileage will be, the captain's guess serving as a guide. The guesses are recorded on a slate at a shilling a time and the resultant pool divided amongst the correct guessers, less ten per cent for seamen's charities. On cruises, when the daily run is so often broken by calls at ports, the decimal pool is often adopted. You then guess the last number of the mileage. For instance, a run of 326 miles provides a win for all who selected six as their number, and the pool is divided amongst them.

A gymkhana is usually arranged when the passengers have had time to get to know each other, which happens surprisingly quickly on board ship. There are all the well-known features—egg and spoon race, pillow fighting (on a cross bar with a soft mattress below), chalking the pig's eye blindfold, tug of war, a bottle driving race (when the men, by means of reins, try to guide blindfolded girls along a course marked out by bottles) and children's races. The sailor's ingenuity is responsible for many a fun-provoking variant. To name but one: a row of men will be given biscuits to eat and a tune to whistle—each a different well-known song. A corresponding number of girls will run down the course, endeavour to persuade the men to hurry over the mastication, with results diametrically opposed to those they seek to obtain, whilst the onlookers rock with laughter, which increases as the unfortunate men, their mouths parched by the dry biscuit, seek to whistle the tune. The first girl to reach her base with the correct name of the tune wins the prize for herself and her partner.

"Horse" races are equally successful. Men and girls are paired off, given nicknames which hit them off to a T, and provided with a pair of scissors and a length of paper tape to each pair. This time it is the girl who has the harder task; she has to cut the tape, held taut by her partner at the farther end, along the centre. Running off the course, by cutting to the edge of the tape, at once disqualifies, and the prize goes to the girl who manages first to reach the end with two equal lengths of paper intact. The fun is enhanced by a "bookie" who discourses on the merits of the "steeds," a flow of comment which does anything but contribute to a steady hand and adds immeasurably to the mirth of the onlookers.

Of course, a ship is a marvellous place for a treasure hunt, but to disclose the systems would spoil the fun—you must see for yourself.

Evening entertainments provide much fun and opportunity for making acquaintances. On entering the dining saloon, for instance, a label is given to every diner which names a man for the evening and indicates his partner. Romeo must obviously look for Juliet, Nelson for Lady Hamilton, whilst Henry VIII will have a busy time looking for any one of six possible wives. Fancy headdress may be the order for another night and I remember once, on a Blue Funnel liner, a whole table entering the saloon, well after everyone was seated, all wearing blue hats shaped like funnels. It is well to be prepared with fancy dress, though those improvised on board are often the greatest success, as, for instance, the Highlander who made a towel serve as kilt, with dustpan and lavatory brush for a sporran, and the two small children, dressed in red bathing costumes with caps, horns, tails and tridents contrived out of red crêpe paper, who made two perfect little devils.

Shore excursions.—Shore excursions are arranged at every port of call, usually by a tourist agency which has an office there. There is no need to wait until the arrival, however, for the agency's staff travels on board and has its own office where excursions can be booked on the steamer. At most ports there are alternative excursions; an inexpensive visit to the town itself and one or more trips by private car, coach or train into the interior of the country. Sometimes the steamer is left for a day or two and rejoined at another port, so as to enable some distant place of interest to be visited. In this way, regular cruise travellers do not avoid, but welcome, a call at a port already visited on a previous trip, for it provides the opportunity of seeing what was missed on the first occasion. Full details are given in a pamphlet, which should be obtained when booking for the cruise, because it must be borne in mind that the cost of the shore excursions is not included in the steamer fare but has to be considered as a separate item in the holiday budget.

It is of course possible to go ashore on one's own and just walk around. Remember, however, that time will be lost in finding your way, you may not know the language or what to look for and may miss the really vital points, to say nothing of the steamer, whilst every private car in the place has been booked up by the tourist agency. A word of warning may not be out of place against a chance acquaintance who "has been there before." You have no guarantee that his knowledge is what he pretends or that his calculations of expense will prove correct and only too often he lets you down. The regular shore excursion, on the contrary, is approved by the steamship company, is organised by men who know their job and is timed to give full value to every minute spent on shore, whilst there is no anxiety as to getting back to the steamer—that is a precaution which you can blissfully leave to the organisers.

Another tip, when booking for these trips, ascertain at the excursion office what clothes are most suitable. It may be pleasantly warm at sea, but very hot on shore in a town, or even quite cold if you drive up into the mountains. Light rubber-soled shoes may be ideal for one trip but agony on another, when stout walking shoes should have been worn. Above all, do not go ashore in beach pyjamas or in anything conspicuous. Cases do occur where passengers, grown accustomed to the licence in clothing which ship life permits, venture ashore in the same garb. They momentarily forget the offence caused to residents when, thus attired, they seek admission into sacred edifices or into dining rooms of the hotels. Loudly-voiced comment on customs strange to our eyes should never be tolerated. We, each and all of us, are ambassadors of our own country when in a foreign land. By our actions, our conduct and our dress we are judged, and must be judged, by those who cannot see us in *our* homes.

A professional photographer is to be found on the large cruising ships. He unobtrusively snaps you on deck, playing games or watching others. He goes ashore and lends interest to photographs of places visited by including you, your friends and fellow travellers, in pictures that are taken with skill and knowledge born of familiarity with the spot and subject. His photographs form delightful souvenirs of a wonderful holiday.

Holidays on regular liners.—Another form of sea holiday is a voyage on a liner on its regular run. Most steamers to the Far East call at Tangier, Gibraltar and Marseilles. A fortnight's holiday can therefore cover the sea trip to Tangier and a week in Morocco, with excursions to such fascinating places as Fez and Marrakesh, before catching the homeward bound steamer. Many people go on to Marseilles and transfer immediately to the homeward steamer, which is in port the same day, thus spending two weeks at sea with a day to see Marseilles. If a third week is available it can be spent on the Riviera. Dutch steamers sailing from Southampton call at Lisbon and Marseilles, or alternatively call at Algiers and Genoa.

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As the tickets are interchangeable the outward journey can be made by one line and the return by another, a very pleasant arrangement which is not sufficiently well-known. Other alternatives are steamers calling at Gibraltar, Palma and Toulon, and this line calls also at Villefranche (Nice) on the homeward run and the voyage may even be extended to Naples. Some boats sail from Liverpool and by these the fares are different, so that there must be an adjustment in the fare when interchanging with tickets of the other lines. All go to Port Said, so that when time permits a few days may be given to Cairo and even Luxor or Jerusalem, with a possible call at Malta *en route*.

The large liners on the mail route to South Africa and South America call at either Madeira or the Canary Islands, and a week or more ashore can be combined with the sea trip out by one steamer and returning by another.

The Baltic Sea is served by several lines of steamers which make ideal holiday trips. London to Leningrad and back via the Kiel Canal; London to Gdynia and Danzig and back, also via Kiel; Hull, Copenhagen, Helsingfors and back; Dover, Copenhagen, Gdynia, Leningrad and back; and so on.

OPEN-AIR HOLIDAYS ABROAD

Walking, cycling, canoeing, climbing! Here are holidays designed for the young and the active. For those who have never been abroad before, this is the most vivid, intimate way of seeing foreign lands. For those who have travelled only by train they are revelation, for one sees so much more. The genuine atmosphere of the country is captured. It is a close-up rather than a superficial view.

But, you say, how can I do this with no knowledge of the language? It would be difficult, if one of our most famous travel agencies had not made it easy and provided expert leaders who are linguists, whilst your own schoolbook knowledge will rapidly develop into fluency. You make new friends, though the groups must obviously be quite small. Walking is limited to six or seven hours' moderate going in a day, including moonlight strolls or river trips. Baggage is sent forward, so that you travel light. The circuits are graded—easy, moderate, and strenuous—to suit your taste; and the cost is amazingly low.

Germany, Switzerland, the Belgian Ardennes, the French Vosges, offer short trips of a week or ten days. The Bavarian Highlands, Austrian Tyrol, Norway and Yugoslavia can be done in sixteen days, and even the High Tatra Carpathians of Czechoslovakia. There are "No Rucksack" rambling holidays.

Canoeing on the Moselle is a holiday out of the ordinary, something quite different, under the guidance of enthusiastic, experienced watermen who make it very jolly and interesting.

You can cycle also. Three hundred miles through Germany, Luxembourg and Belgium is one circuit. Four hundred miles—Heidelberg, the Neckar Valley and the Black Forest—is another, with, of course, ample opportunities for swimming and sun-bathing. The former covers nine days, the latter sixteen, and you can also push as far as Bavaria and the Austrian Tyrol.

Climbing holidays in the Swiss Alps form a never-to-be-forgotten experience. You can join a Swiss climbing school, or, under the guidance of a Swiss mountaineer, climb such famous heights as the Eiger Glacier, the Männlichen and the Jungfrau.

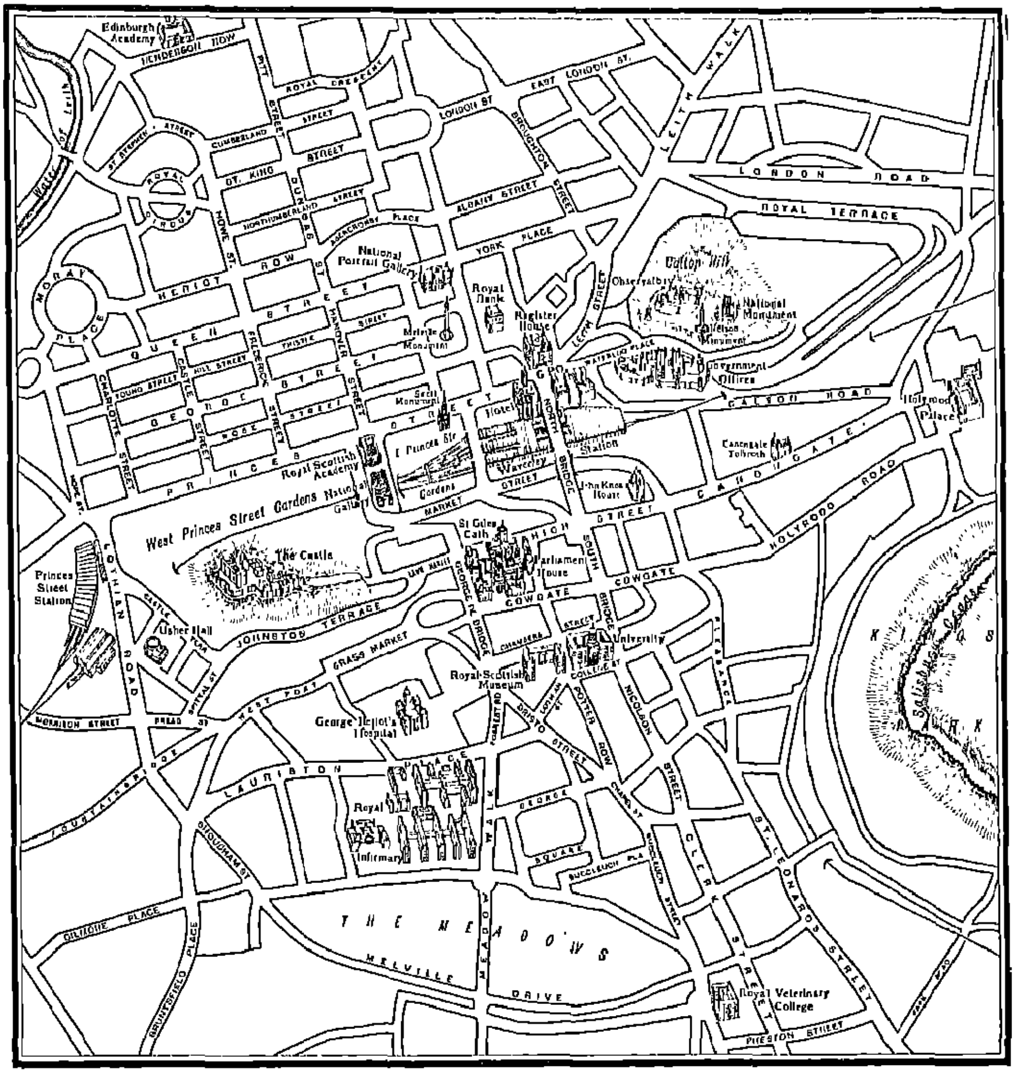
Best of all, you can make up your own party of friends and have a private trip all to yourselves. It is a wonderful life.

Lovers of wild flowers may not know that tours exist specially for them, to distant hillsides that are ablaze with flowers, where white narcissi are so thick, so close together, that you would think the stars had tumbled from the skies upon the earth beneath; where village festivals are held in honour of the camellias, where terraced gardens of myosotis, pansies and violets surge forth upon the pastures. A famous agency has organised these tours—to Sardinia, perhaps, in April, an island hitherto untrodden by the tourist; to the Bernese Oberland in May; as far as Yugoslavia in June. The latter goes by train to Innsbruck and then by private motor coach, over the great Grossglockner Alpine road into Carinthia, and right off the beaten track in Yugoslavia, a country which will one day be a travellers' paradise. The Tatra Mountains in Czechoslovakia and the Dolomites in Austria and Italy are visited in July, and the Rhaetian Alps, in western Switzerland, in August. New ground is broken every year, not with the object of acquiring specimens but rather of enjoying the sight of nature's jewels in all the glory of their magnificent surroundings.

W. R. TODD.

EDINBURGH

The origin of Edinburgh is obscure, lost amid myths and legends. The rock from which the castle towers over the modern city shows evidence in its volcanic nature of upheavals of the earth long before the advent of man. From earliest days a fortress, possessed in turn by Britons, Romans, Saxons, and Picts, has occupied the site. Other evidence of the antiquity of the settlement is suggested by the name Arthur's Seat given to the hill which overlooks Holyrood, and which suggests connection with the



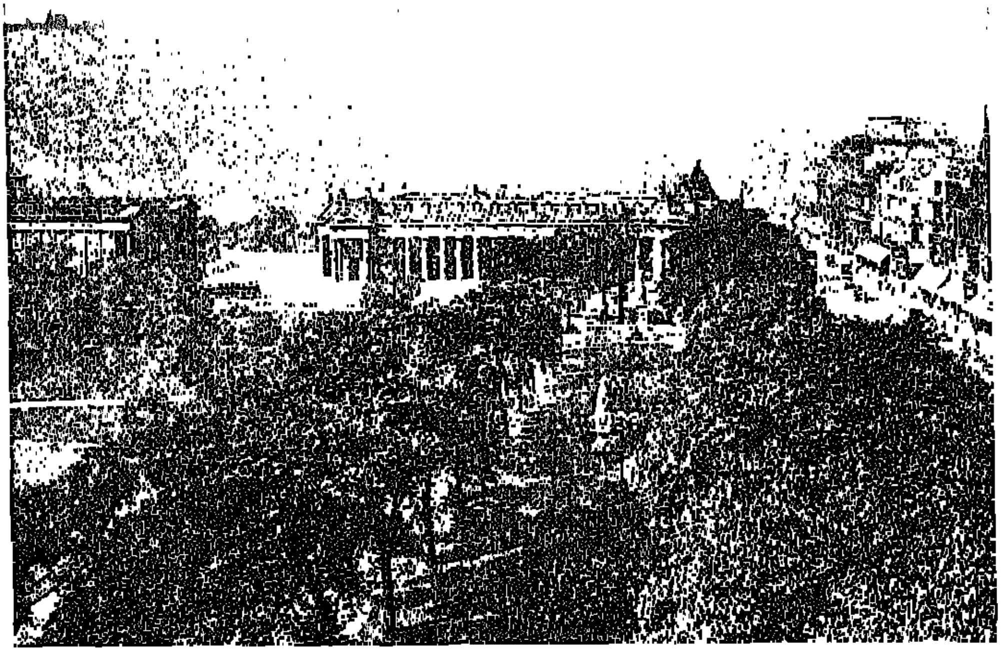
Map of Edinburgh
(Class Picture No. 77 in the Portfolio)

legendary King Arthur. From the hill a magnificent view of the city, the Firth of Forth and the land of Fife is obtainable.

Probably the beginnings of the future city were rough huts of the early inhabitants of the Scottish lowlands, some of whom sought the protection of the castle on the rock.

Definite records are available that in the seventh century A.D. Edwin of Deira gained the throne of Northumbria, and to keep the northern people in check he took their fortress and around the rock built a new village which came to be called "Edwin's burg" or town. From this time the history is clear and always centres around the castle.

On three sides the rock drops sheer down to the valley below, while to the east a narrow ridge known as the "Royal Mile" stretches to Holyrood Palace. The old town is clustered near the castle and is



[Reproduced by courtesy of L.M.S. Railway.

EDINBURGH

characterised by lofty buildings separated by narrow closes or paths. These were a consequence of building the city on the narrow ridge just described, and the result was such congestion that in the eighteenth century the marshes north of the castle were drained, and there was built the new town which contrasts strangely with the old. The tall buildings of the old town have been termed by Robert Louis Stevenson "beehives ten storeys high."

The removal of the capital of Scotland from Dunfermline to Edinburgh dates from the time of King Malcolm Canmore, whose wife, Margaret, sister of Edgar Atheling, persuaded him to change their residence. One of the most interesting buildings in the castle is St. Margaret's chapel, a small Norman chapel probably built for this queen, who is remembered for her piety. The chapel is one of the smallest churches in Great Britain, being only 17 ft. by 11 ft. It was restored in 1853 by command of Queen Victoria, and recently the small windows have been renewed with figures of St. Andrew, St. Ninian, St. Columba, St. Margaret and Sir William Wallace.

The castle has a fine approach, called the "esplanade." During the reign of Charles I. the esplanade was declared to be part of Nova Scotia, in order that newly made Nova Scotian baronets might "take seisin" of their new possessions. This decree has never been annulled, and thus the strange situation occurs that legally this portion of Edinburgh is in Canada! On the esplanade are many monuments and statues, including a fine equestrian statue of field-marshal earl Haig.

After entering the castle by the drawbridge over the ancient moat, a steep narrow path eads to the old state prison known as Argyll's Tower, part of the buildings erected by David II. in 1358. It has walls 10 ft. to 15 ft. thick. In it were imprisoned the marquis and earl of Argyll, father and son, before their execution for adherence to the Covenant. The Argyll battery is on the edge of the cliff overlooking Princes Gardens, which are at the foot. On the Half Moon battery is the time gun fired daily at one o'clock, by connexion with an electrically controlled clock at the Royal Observatory on Blackford Hill.

Near the southern edge of the rock are the historical apartments. In Queen Mary's bedroom, on June 19, 1566, was born the heir who united the English and Scottish crowns and became James VI. of Scotland and I. of England. There is a traditional story that the infant was let down in a basket from the height of the rock and taken away that he might be christened in the Catholic faith. This may be a confusion with the removal of James II. of Scotland from chancellor Crichton. Another legend tells that Mary's son died, and that for political reasons, to prevent disturbances, another child was substituted. If this was done the secret was well kept, as Mary believed that James I. was her son. The legend was given fresh importance when, in 1830, a small coffin containing the bones of an infant was discovered in the wall of Queen Mary's room. It is one of the mysteries in Scottish history.

In the crown room are the Scottish regalia which include a crown, sceptres, sword of state, jewels, and other interesting pieces. Unlike the English regalia, which (except for a few pieces, such as the Black Prince's ruby, the ampulla and spoon and Queen Elizabeth's salt cellar) were made for Charles II., the Scottish regalia are of great antiquity. The crown of Scotland is said to have been used at the coronation of Bruce in 1314.

The old parliament hall or banqueting hall is now a museum chiefly of armour. It is believed that the earlier meetings of the Scots estates or parliament were held here.

The culmination of all the buildings of the castle is a modern one, namely, the Scottish National War Memorial. It is a marvellous piece of work, unparalleled anywhere in the world, erected by the country in honour of their fellow men who fell in the Great War. It rises from the highest part of the castle rock, and has a sanctuary facing north, with east and west transepts. In the bays of the transepts are memorials to individual regiments, the colours of the regiments and books recording the names of those who died. The windows are of stained glass illustrating various aspects of the war. Aeroplanes, warships, red-cross workers, munition workers—nothing has been forgotten,—and yet all suggests an atmosphere of peace. The sanctuary is shut off by bronze gates, and within it the walls are covered with figures carved in bronze depicting every type of Scotsman or Scotswoman who took part in the war. The figures are arranged in procession around the sanctuary walls. The whole building centres upon the altar in the sanctuary. This rests on an outcrop of the rough virgin rock which stands up from the floor, and on it is a casket in which is kept a record of the names of all the 100,000 Scotsmen from all parts of the world who died in the Great War.

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(*Italicised numbers indicate illustrations with or without text.*)

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